Analytical Chemistry S

Programme course

6 credits

Analytisk kemi S

NKEB03

Valid from: 2017 Spring semester

Determined by
Board of Studies for Chemistry, Biology and Biotechnology

Date determined
2017-01-25

Main field of study
Chemical Engineering, Chemistry

Course level
First cycle

Advancement level
G1X

Course offered for
- Chemistry, Bachelor´s Programme
- Chemical Analysis Engineering, B Sc in Engineering

Entry requirements
Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites
General Chemistry, Organic Chemistry, Inorganic Chemistry, Calculation tools for chemistry students.

Intended learning outcomes
The aim of the course is to give fundamental theoretical, practical and instrumental knowledge in the field of atomic and molecular spectrometry and electroanalytical chemistry. After completing this course the student should be able to:

- Give an account of basic concepts within the area of spectrometry and electroanalytical chemistry.
- Describe the principles and construction of spectrometric and electroanalytical instruments.
- Explain the chemical principles of spectrometric and electroanalytical methods.
- Interpret and qualitatively and quantitatively evaluate data obtained from spectrometric and electroanalytical analyses.

Course content
Molecular UV/VIS spectrometry: absorption and luminescence. Atomic absorption and emission spectrometry (AAS and ICP techniques). Mass spectrometry. Electroanalytical chemistry: fundamentals of electrochemistry, ion-selective electrodes and potentiometry, coulometry, voltammetry. Potentiometric titration. Calibration methods.

Teaching and working methods
The course consists of lectures, laborations and short written tests. The laborations are compulsory.

Examination

LAB1	Laboratory work with tests	3 credits	U, G
TEN1	Written examination	3 credits	U, 3, 4, 5

Grades
Four-grade scale, LiU, U, 3, 4, 5

Other information
Supplementary courses: Analytical Chemistry K and Organic analytical chemistry.

Department
Institutionen för fysik, kemi och biologi

Director of Studies or equivalent
Magdalena Svensson

Examiner
Elke Schweda

Education components
Preliminary scheduled hours: 66 h
Recommended self-study hours: 94 h

Course literature
Harris D.C., Quantitative Chemical Analysis, 9th ed., Freeman, 2016.

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.