Analytical Chemistry - Chromatography

Programme course

6 credits

Analytisk kemi - Kromatografi

NKEB10

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
- Chemical Analysis Engineering, B Sc in Engineering
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- Chemistry
- Chemical Biology

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, Calculation tools for chemistry students, Analytical Chemistry

Intended learning outcomes
The aim of the course is to give fundamental theoretical, practical and instrumental knowledge in the field of analytical separation techniques. After completing this course the student should be able to:

- Give an account of basic concepts within the area of analytical separation techniques (chromatography and capillary electrophoresis).
- Describe the principles and construction of instruments used for chromatography and capillary electrophoresis.
- Explain the chemical principles of analytical separation methods.
- Qualitatively and quantitatively evaluate data obtained from chromatographic and electrophoretic separations.

Course content
Theory of chromatographic separation. Gas chromatography (GC) including sample injection, separation and detection. High performance liquid chromatographic (HPLC) methods such as normal phase and reversed phase HPLC, ion chromatography and size-exclusion chromatography. Theory and principles of capillary electrophoresis. Mass spectrometry. Chromatography combined with mass spectrometry: GC-MS and HPLC-MS.

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

Department
Institutionen för fysik, kemi och biologi

Director of Studies or equivalent
Magdalena Svensson

Examiner
Johan Dahlén

Education components
Preliminary scheduled hours: 58 h
Recommended self-study hours: 102 h

Course literature
Harris D.C., Quantitative Chemical Analysis, 8th ed., Freeman, 2010.

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.