

Organic Analytical Chemistry

Programme course

12 credits

Organisk analytisk kemi

NKEC16

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

G2X

Course offered for

- Chemical Analysis Engineering, B Sc in Engineering
- Chemistry

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

Analytical Chemistry (in particular Analytical Chemistry - Chromatography), Organic Chemistry

Intended learning outcomes

To gain general and specific knowledge concerning the analysis of mainly low-molecular-weight organic compounds. The student will after the course cover many of the analytical techniques that are important within the field of chemical analysis. The student shall also be able to utilize scientific literature within the area. In order to achieve this it is necessary to:

- Theoretically and practically cover gas chromatographic techniques
- Theoretically and practically cover high performance liquid chromatographic techniques
- Utilize mass spectrometry for the structural elucidation of unknown organic compounds
- Treat samples before the final instrumental analysis
- Develop analytical methods for trace element analysis, qualitatively as well as quantitatively
- Be able to perform basic instrument maintenance

Course content

- Mass spectrometry concerning the function of the spectrometer, the most common mass spectrometric techniques, manual and computerized interpretation of mass spectra and combinations of chromatographic separation techniques and mass spectrometry.
- Chromatographic high resolution techniques. The development of analytical techniques in theory and practice. Trace element analysis regarding concentration, separation, identification and quantification

Teaching and working methods

Theory of mass spectrometry and chromatography are presented in lectures. In the laboratory the students use modern equipment for chemical separations and study their possibilities and limitations. Analytical methods for the analysis of organic compounds or consumption products are developed in groups of 2-3 students. The laboratory course takes place in dedicated area.

Examination

LAB1	Laboratory work	5 credits	U, G
TEN1	Written examination	7 credits	U, 3, 4, 5

LAB1 has the following compulsory moments: All laborations with respective surveys, participation at educational visits. In case the student does not pass the laboratory course, the examiner will provide a complementary task since this is required for project course TFK119.

The examinations show in what respect the students fulfil the aims of the course. For passing, limitations regarding parts of the aims may be compensated by deeper knowledge of others.

Grades

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

Other information

Supplementary courses: Forensic chemistry.

Department

Institutionen för fysik, kemi och biologi

Director of Studies or equivalent

Magdalena Svensson

Examiner

Elke Schweda

Education components

Preliminary scheduled hours: 112 h

Recommended self-study hours: 208 h

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://stydokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.