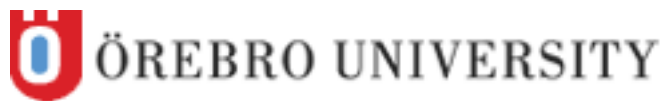

This course syllabus is discontinued or replaced by a new course syllabus.



Course Syllabus

School of Science and Technology

Instrumental Analytical Methods, 15 Credits

Course Code:	KE105G	Subject Area:	Field of Science
Main Field of Study:	Chemistry	Credits:	15
Education Cycle:	First Cycle	Subject Group (SCB):	Chemistry
Established:	2016-11-30	Progression:	G2F
Valid from:	Autumn semester 2017	Last Approved:	2017-03-30
		Approved by:	Head of School

Aims and Objectives

General aims for first cycle education

First-cycle courses and study programmes shall develop:

- the ability of students to make independent and critical assessments
- the ability of students to identify, formulate and solve problems autonomously, and
- the preparedness of students to deal with changes in working life.

In addition to knowledge and skills in their field of study, students shall develop the ability to:

- gather and interpret information at a scholarly level
- stay abreast of the development of knowledge, and
- communicate their knowledge to others, including those who lack specialist knowledge in the field.

(Higher Education Act, Chapter 1, Section 8)

Course Objectives

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Main Content of the Course

Analytical Chemistry has developed into a sophisticated applied area in chemistry and is dependent on modern equipment and data processing. The field of mass spectrometry has grown during the last decades and plays a major part in quantitative and qualitative analytical determination. Knowledge of mass spectrometric techniques and methods are of great importance in various fields, for example in assessment of environmental impact, in forensic science and in the pharmaceutical sector. The course covers the theory of various mass analyzers and hyphenated techniques such as GC-MS, GC-MS/MS, LC-MS, LC-MS/MS and ICP-MS as well as interpretation of mass spectra data. Laboratory exercises where hyphenated techniques are used are included in the course as well as speciation and quality assurance. After completing the course you are familiar with mass spectrometric techniques and methods and know how to interpret MS data.

Teaching Methods

Teaching is in the form of lectures, seminars and practicals.

If the course has few students will the teaching be in form of tutoring.

Students who have been admitted to and registered on a course have the right to receive tuition and/or supervision for the duration of the time period specified for the particular course to which they were accepted (see, the university's admission regulations (in Swedish)). After that, the right

to receive tuition and/or supervision expires.

Examination Methods

Mass Spectrometry and Related Techniques - Theory, 6.5 Credits. (Code: 0100)
Written examination

Mass Spectrometry and Related Techniques - Practicals, 3 Credits. (Code: 0200)

Seminars and laboratory work presented in writing and in some cases orally.

If a student is absent from a mandatory course component, the examiner determines if the student will be able to make up for the component during another scheduled class of the same kind.

Otherwise, the student is referred to the next time the course is offered. As an exception the examiner may decide on substitute assignments. These shall then be carried out before or shortly after the end of the course.

Interpretation of Mass Spectrometric Data, 5.5 Credits. (Code: 0300)

Written examination

For further information, see the university's local examination regulations (in Swedish).

Grades

According to the Higher Education Ordinance, Chapter 6, Section 18, a grade is to be awarded on the completion of a course, unless otherwise prescribed by the university. The university may prescribe which grading system shall apply. The grade is to be determined by a teacher specifically appointed by the university (an examiner).

According to regulations on grading systems for first- and second-cycle education (vice-chancellor's decision 2010-10-19, reg. no. CF 12-540/2010), one of the following grades is to be used: fail, pass, or pass with distinction. The vice-chancellor or a person appointed by the vice-chancellor may decide on exceptions from this provision for a specific course, if there are special reasons.

Grades used on course are Fail (U), Pass (G) or Pass with Distinction (VG).

Mass Spectrometry and Related Techniques - Theory

Grades used are Fail (U), Pass (G) or Pass with Distinction (VG).

Mass Spectrometry and Related Techniques - Practicals

Grades used are Fail (U) or Pass (G).

Interpretation of Mass Spectrometric Data

Grades used are Fail (U), Pass (G) or Pass with Distinction (VG).

For further information, see the university's local examination regulations (in Swedish).

Specific entry requirements

60 credits in Chemistry, including Analytical Chemistry.

For further information, see the university's admission regulations (in Swedish).

Transfer of Credits for Previous Studies

Students who have previously completed higher education or other activities are, in accordance with the Higher Education Ordinance, entitled to have these credited towards the current programme, providing that the previous studies or activities meet certain criteria.

For further information, see the university's local credit transfer regulations (in Swedish).

Other Provisions

The language of instruction on the course will be English if there are exchange students registered.

Reading List and Other Teaching Materials

Part 1: Required Reading

de Hoffmann, Edmond, Stroobant, Vincent (Senaste upplagan)
Mass Spectrometry. Principles and Applications.
John Wiley & Sons, Ltd., 502 pages

Part 2: Required Reading

McLafferty, Fred W, Turecek, Frantisek (Senaste upplagan)
Interpretation of Mass Spectra
University Science Books, 371 pages