



Faculty of Science

## KEMB06, Chemistry: Analytical Chemistry, 15 credits

*Kemi: Analytisk kemi, 15 högskolepoäng*

First Cycle / Grundnivå

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### Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2007-03-01 and was last revised on 2012-01-24. The revised syllabus applies from 2012-01-25, autumn semester 2012.

### General Information

The course is a compulsory first-cycle course for a degree of Bachelor of Science, main field of study Chemistry.

*Language of instruction:* Swedish

*Main field of studies*

Chemistry

*Depth of study relative to the degree requirements*

G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

### Learning outcomes

The aim of the course is to provide students with basic theoretical insights into classical and instrumental analytical chemistry and skills in the application of analysis instruments, and to prepare them for a future profession in laboratory analytical chemistry.

On completion of the course, the students shall have acquired the following knowledge and skills.

### Knowledge and understanding

On completion of the course, the students shall be able to

- explain basic theory of chemical analyses
- describe the structure and explain the function of important analysis instruments

## Competence and skills

On completion of the course, the students shall be able to

- perform qualitative and quantitative analyses, in accordance with the instructions given, in a safe and reliable manner
- perform simple laboratory method optimisations
- apply statistical theories for determining measurement uncertainty in analysis results
- compile experimental data and summarise them in a written report
- propose basic features of an analysis procedure for a given question

## Course content

*Lectures:* Basic analytical chemistry theory for instrumental techniques within chromatography, mass spectrometry, spectrophotometry, automated flow analysis and electrochemical analysis, and techniques such as sample processing and complexometry. Principles for evaluation and control of analysis results. Overview of the role of analytical chemistry in society.

*Laboratory exercises:* Studies of instrumental parameters and practice in using analysis instruments in the following areas: gas chromatography and liquid chromatography, potentiometry, automated flow analysis and flame atomic spectrophotometry.

## Course design

The teaching consists of lectures and exercises covering theoretical aspects. It also includes a compulsory lecture on laboratory safety. The lecture block is followed by a laboratory block comprising seven compulsory one-day lab exercises.

## Assessment

The assessment is based on a written exam. A re-sit examination is offered soon after the examination to students who do not pass.

*Subcourses that are part of this course can be found in an appendix at the end of this document.*

## Grades

Marking scale: Fail, Pass, Pass with distinction.

For a grade of Pass on the whole course, the student must have passed the exam and the laboratory exercises.

The grades awarded for the exam are Fail, Pass, and Pass with Distinction. The grades awarded for the laboratory exercises and the associated compulsory components are Fail and Pass.

The final grade is determined by the grade of the exam.

## Entry requirements

To be admitted to the course, students must have basic eligibility and have passed courses equivalent to: KEMA00 General and Analytical Chemistry, 7.5 credits, KEMA01 Organic Chemistry – Basic Course, 7.5 credits, KEMA02 Inorganic Chemistry – Basic Course, 7.5 credits and KEMA03 Biochemistry – Basic Course, 7.5 credits.

Students who have acquired the equivalent knowledge by other means may also be admitted to the course.

### **Further information**

The course may not be included in a degree together with KEM005 Analytical Chemistry, 15 credits.

## Subcourses in KEMB06, Chemistry: Analytical Chemistry

Applies from H13

- 0711 Analytical Chemistry, 10,0 hp  
Grading scale: Fail, Pass, Pass with distinction
- 0712 Analytical Chemistry, Laboratory Work, 5,0 hp  
Grading scale: Fail, Pass

Applies from H07

- 0701 Analytical Chemistry, 15,0 hp  
Grading scale: Fail, Pass, Pass with distinction
- 0702 Analytical Chemistry, Laboratory Work, 0,0 hp  
Grading scale: Fail, Pass