

## KEMA12, Chemistry: Inorganic Chemistry - Basic Course, 7.5 credits

*Kemi: Oorganisk kemi - grundkurs, 7,5 högskolepoäng*  
First Cycle / Grundnivå

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### Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2013-04-25 and was last revised on 2013-04-25. The revised syllabus applies from 2013-07-01, autumn semester 2013.

### General Information

The course is included in the main field of chemistry at the Faculty of Science. The course is a compulsory first-cycle course for a degree of Bachelor of Science, main field of study Chemistry.

*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 objective is that the students, on completion of the course, shall have acquired the following knowledge and skills.

#### Knowledge and understanding

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

- apply nomenclature and write formulas for inorganic compounds
- account for the properties of strong and weak acids and bases, and perform calculations on simple acid-base equilibria
- account for the meaning of common variables and concepts in reaction kinetics
- account for the descriptive chemistry of the main group elements and transition elements
- account for the electron structure and periodic trends of transition elements

- account for carbon and nitrogen cycles in nature
- describe some important industrial processes
- describe the elements of the solid state

### Competence and skills

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

- apply general equilibrium theory and electrochemistry as well as solve simple problems
- perform calculations in basic kinetics
- experiment with and synthesise inorganic compounds

### Course content

The course consists of a theoretical part comprising 5.5 credits and a laboratory part, including compulsory components, comprising 2 credits.

#### *Lectures*

- nomenclature and formula writing for inorganic compounds
- acid-base equilibria in water solutions
- descriptive chemistry for the main group elements, transition elements and the elements cycle
- solid state
- electrochemistry
- kinetics
- chemical equilibrium applied to homogeneous and heterogeneous inorganic reactions

*Laboratory exercises:* Experiments in chemical analysis, synthesis and reaction theory selected in order to illustrate the theoretical content of the course.

### Course design

The teaching consists of lectures, exercises and laboratory sessions. All laboratory sessions are compulsory.

### Assessment

The assessment is based on a written exam at the end of the course. Students who fail an assessment will be offered another opportunity for assessment soon thereafter.

*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 laboratory exercises, and have participated in all compulsory components.

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

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

### **Entry requirements**

To be admitted to the course, s students must have basic eligibility and passed courses equivalent to KEMA00 General and Analytical Chemistry, 7.5 credits, or KEMA10 General Chemistry, 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 KEMA02 Inorganic Chemistry – Basic Course, 7.5 credits.

## Subcourses in KEMA12, Chemistry: Inorganic Chemistry - Basic Course

Applies from H13

- 1301 Inorganic Chemistry - Basic Course, 5,5 hp  
Grading scale: Fail, Pass, Pass with distinction
- 1302 Inorganic Chemistry - Basic Course, Laboratory Work, 2,0 hp  
Grading scale: Fail, Pass