

## KEMM22, Chemistry: Coordination Chemistry, 7.5 credits

*Kemi: Koordinationskemi, 7,5 högskolepoäng*

Second Cycle / Avancerad nivå

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### Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2008-03-12 and was last revised on 2008-03-12. The revised syllabus applies from 2008-07-01, autumn semester 2008.

### General Information

The course is an optional second-cycle course for a degree of Master of Science in Chemistry.

*Language of instruction:* English and Swedish  
When necessary, the course in full is given in English.

*Main field of studies*

Chemistry

*Depth of study relative to the degree requirements*

A1N, Second cycle, has only first-cycle course/s as entry requirements

### Learning outcomes

The aim of the course is to provide in-depth knowledge and practical skills within inorganic chemistry, particularly Coordination Chemistry.

The aim of the course is that on its completion students will have acquired the following skills and knowledge:

- the ability to set up inorganic reaction mechanisms and describe kinetic methods for investigating reaction mechanisms
- the ability to describe in detail different models of chemical bonds in transition metal complexes
- the ability to describe in detail the chemistry of d-block elements, commonly occurring oxidation conditions and common compounds with p-block elements, and to describe the occurrence of optical and geometric isomers in coordination complexes
- good familiarity with modern inorganic chemical literature and databases for source searches in chemical literature

- the ability to read and understand primary research reports in coordination, organometallic and, to some extent bioinorganic chemistry

## Course content

*Lectures:* The course deals with Coordination Chemistry. In this field, structure and bonding theories, reaction mechanisms and kinetics, as well as characterisation methods (NMR and molecular spectroscopy) are studied. Examples are primarily taken from the coordination and organometallic chemistry of transition metals.

*Laboratory work:* Practical skills in inorganic synthesis and kinetics are practised through laboratory work. The course will also provide training in the use of chemical databases and in oral and written presentations.

## Course design

Teaching takes the form of lectures, seminars and laboratory work. Participation in seminars and laboratory work is compulsory.

## Assessment

Assessment comprises a written or oral examination and oral and written presentations during the course. 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.

To be awarded Pass students must pass the examination, pass the laboratory work and participate in all compulsory components.

The examination grades are: Pass with Distinction, Pass or Fail. Grades for the compulsory components are: Pass or Fail.

The final grade for the course is determined by weighting the results of the examination and the oral and written presentations.

## Entry requirements

To be eligible for this course students must have basic eligibility and 90 higher education credits in completed Science courses, including passes in 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, or

KEM101 General Chemistry 1 15 credits and KEM102 General Chemistry 2 15 credits, or

KEM111 Chemistry for Environmental and Biological Sciences – General Course 1 15 credits and KEM122 Chemistry for Environmental and Biological Sciences – General Course 2 15 credits

and

- KEMB09 Physical Chemistry – Basic Course 15 credits or KEM103 General Chemistry 3 15 credits,
- KEMB29 Spectroscopy and Dynamics 7.5 credits and KEMB12 Inorganic chemistry 7.5 credits or KEMB02 Inorganic Chemistry, 15 credits or KEM113 Inorganic Chemistry 15 credits
- one of the courses MATA01 Mathematics for Scientists 1 15 credits, MATA11 Mathematics 1 Alpha 15 credits, MAT015 Mathematics for Scientists 1 15 credits or MAT131 Mathematics 1 Alpha 15 credits.

Equivalent knowledge that has been gained in another way also provides eligibility for the course.

### **Further information**

The course cannot be credited as part of a degree programme that also includes KEMM02 Inorganic Chemistry – Advanced course, 15 credits, or KEM033 Inorganic Chemistry – Advanced course 15 credits.

## Subcourses in KEMM22, Chemistry: Coordination Chemistry

Applies from H13

- 0811 Coordination Chemistry, 5,5 hp  
Grading scale: Fail, Pass, Pass with distinction
- 0812 Coordination Chemistry, Compulsory Elements, 2,0 hp  
Grading scale: Fail, Pass

Applies from H08

- 0801 Coordination Chemistry, 7,5 hp  
Grading scale: Fail, Pass, Pass with distinction
- 0802 Coordination Chemistry, Compulsory Elements, 0,0 hp  
Grading scale: Fail, Pass