



# KD1130 Inorganic Chemistry 6.0 credits

Oorganisk kemi

This is a translation of the Swedish, legally binding, course syllabus.

## Establishment

Course syllabus for KD1130 valid from Spring 2011

## Grading scale

A, B, C, D, E, FX, F

## Education cycle

First cycle

## Main field of study

Technology

## Specific prerequisites

Completed upper secondary education including documented proficiency in English corresponding to English A. For students who received/will receive their final school grades after 31 December 2009, there is an additional entry requirement for mathematics as follows: documented proficiency in mathematics corresponding to Mathematics A.

And the specific requirements of mathematics, physics and chemistry corresponding to Mathematics E, Physics B and Chemistry A.

# Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

The course aims at giving the students knowledge in the broad field of inorganic chemistry, including its tools, properties and applications of inorganic compounds.

After completed course the students should be able to:

- Use the Periodic System of Elements as a tool for understanding and managing the properties of the elements and their compounds
- Master basic properties of inorganic substances
- Have knowledge of preparation and uses of important inorganic compounds
- Explain basic properties of the compounds of d-block elements using Crystal Field Theory
- Master inorganic reaction mechanisms
- Understand a catalyst's function on molecular level
- Understand function and molecular properties for the most important bio-inorganic systems
- Understand the energy production in the society and its border lines to chemistry, especially inorganic chemistry
- Understand various solar cells' function and chemistry

## Course contents

- Inorganic chemistry bases
- Chemical bonding, structure and molecular symmetry determines the material properties
- Coordination Chemistry
- Systematic inorganic chemistry
- Transition Metals
- Reactivity and inorganic reaction mechanisms
- Boundaries: bio-inorganic chemistry, metal-organic chemistry, materials chemistry

Laboratory:

1. Wilkinson's catalyst
2. Solar cell: structure and performance

## Course literature

Inorganic Chemistry, Shriver & Atkins 5th Ed. 2010 and handouts.

## Examination

- TEN2 - Examination, 4.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB2 - Laboratory Work, 2.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

## Other requirements for final grade

Examination (TEN 2: 4 cr)

Laboratory work (LAB2: 2 cr)

## Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.