



KD1060 Molecular Structure 7.5 credits

Molekylär struktur

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

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

Establishment

Course syllabus for KD1060 valid from Autumn 2007

Grading scale

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

Education cycle

First cycle

Main field of study

Chemistry and Chemical Engineering, Technology

Specific prerequisites

Language of instruction

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

Intended learning outcomes

This course should provide the student with a basic understanding of chemical bonding, intermolecular interactions and molecular spectroscopy, and an introduction to modern methods for determination of the structure and properties of molecules.

Course contents

- Elementary quantum mechanics
- Electronic structure of atoms, atomic orbitals, the basis for the periodic system
- Chemical bonding, molecular orbitals, hybridization, singlet and triplet states, applications of chemical bonding in organic, inorganic, and biological molecules
- Background to modern quantum chemical methods
- Intermolecular interactions, gases-liquids-liquid crystals-solids, supermolecular structures, e.g. biomembranes
- Spectroscopical methods such as IR, Raman, UV/VIS, NMR, MS, ESCA
- Diffraction methods
- Structural chemistry with student project (1p)

Most of the experimental methods and the computational quantum chemistry are exemplified by laboratory and/or computer exercises.

Examination

- LAB1 - Laboratory Work, 1.5 credits, grading scale: P, F
- PRO1 - Project, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, 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.

Other requirements for final grade

1. Written examination 4,5 credits
2. Laboratory work 1,5 credit
3. Project work 1,5 credit

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.