



KH1408 Spectroscopic Methods in Organic Chemistry 7.5 credits

Spektroskopiska metoder i organisk kemi

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

Establishment

Course syllabus for KH1408 valid from Autumn 2019

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Basic competences and special qualifications equivalent to: Physics 2, Chemistry 1 and Mathematics 3c. In each of the subjects, the grade E is required.

Basic knowledge of organic chemistry corresponding to the course KH1121.

Language of instruction

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

Intended learning outcomes

After the course, the student will:

- Be familiar with different spectroscopic methods to identify organic compounds (UV, IR, MS, NMR)
- Know the principles behind each of the methods.
- Have experience of using various spectroscopic devices to record spectra.
- Know the advantages and disadvantages of the various spectroscopic methods.
- Be able to interpret spectra from UV, IR, MS, ^1H and ^{13}C NMR, as well as 2D NMR.
- Be able to determine chemical structure based on a combination of spectra.
- Be able to present chemical structure in written form

Course contents

Review of various spectroscopic methods used in organic chemistry to identify and characterize organic compounds (UV, IR, MS, NMR). The physical principles behind the methods as well as the pros and cons of the different methods are discussed in seminar form (RED1). Exercises with spectral interpretation form a large part of the course.

Each student receives an unknown sample to identify by recording and interpreting a series of different spectra. The results are documented in a written report.

Course literature

Williams, D.H, Fleing, I., Spectroscopic Methods in Organic Chemistry, 6th ed., McGraw-Hill Education, 2007

Examination

- SEM1 - Seminars, 3.5 credits, grading scale: P, F
- INL1 - Assignment, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory work, 1.0 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

INL1: Assignment, 3.0 credits

LAB1: Laboratory, 1.0 credits

SEM1: Seminars 3.5 credits: Mandatory attendance at seminars

The final grade will be the same as the grade on INL1, grade scale: A, B, C, D, E, FX, F

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.