



CK2310 Advanced Organic Chemistry 7.5 credits

Avancerad organisk kemi

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 CK2310 valid from Autumn 2024

Grading scale

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

Education cycle

Second cycle

Main field of study

Technology

Specific prerequisites

Completed degree project in natural sciences or (chemical) engineering 15.0 credits, 75 credits in chemistry or chemical engineering of which at least 10 credits in organic chemistry. English B/6.

Language of instruction

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

Intended learning outcomes

After completion of the course the student will be able to:

- Describe, explain, and compare the reactivity in organic chemistry and synthesis with for example reaction mechanisms and concepts in physical organic chemistry.
- Analyze and evaluate processes in organic chemistry from a green and sustainable perspective.

Course contents

Short course description:

- Focus on reactivity and synthesis in organic chemistry.
- Principles and factors governing reactions of organic compounds.
- Application of the concept of green chemistry in organic chemistry for sustainable development.
- The process of drug development in the pharmaceutical industry.
- Application of organic chemistry in medicinal and pharmaceutical chemistry.

Detailed course description:

- Delineate mechanisms for reactions in organic chemistry.
- Application of organic reactions in multi-step synthesis.
- The process of drug discovery in the pharmaceutical industry.
- Principles concerning green- and sustainable chemistry.
- Principles regarding reaction energetics and reaction kinetics.
- Application of molecular orbital theory on reactivity and stereochemistry.
- Principles for the rationalization of regio- or enantioselective reaction outcomes.
- Silicon, phosphorous, and sulfur in organic chemistry.
- Basic metal-organic chemistry.
- Application of knowledge in organic chemistry on pharmaceutical and medicinal chemistry.

Examination

- PRO2 - Project assignment, 1.5 credits, grading scale: P, F
- TEN2 - Written exam, 6.0 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.

The final grade will be the same as the grade obtained on the written exam (TEN1)

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.