



KD2310 Advanced Organic Chemistry 7.5 credits

Organisk kemi, fortsättningskurs

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

Establishment

Course syllabus for KD2310 valid from Autumn 2015

Grading scale

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

Education cycle

Second cycle

Main field of study

Chemical Science and Engineering, Chemistry and Chemical Engineering

Specific prerequisites

_Admission requirements for programme students at KTH:

_At least 150 credits from grades 1, 2 and 3 of which at least 110 credits from years 1 and 2, and bachelor's work must be completed, within a programme that includes:
75 university credits (hp) in chemistry or chemical engineering, 20 university credits (hp) in mathematics and 6 university credits (hp) in computer science or corresponding.

The course KD1270 Organic Chemistry, Basic Concepts and Practice 2 or equivalent knowledge.

_Admission requirements for independent students:

_75 university credits (hp) in chemistry or chemical engineering, 20 university credits (hp) in mathematics and 6 university credits (hp) in computer science or corresponding. Documented proficiency in English corresponding to English B.

The courses KD1230 Organic Chemistry, Basic Concepts and Practice, and **KD1270 Organic Chemistry, Basic Concepts and Practice 2 or equivalent knowledge.**

Language of instruction

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

Intended learning outcomes

- Delineate mechanisms for reactions in organic chemistry, polymer chemistry and biochemistry
- Apply organic reactions in multi-step synthesis
- Describe the process of drug discovery in the pharmaceutical industry
- Describe principles concerning green- and sustainable chemistry
- Describe principles regarding reaction energetics and reaction kinetics
- Apply molecular orbital theory on reactivity and stereochemistry
- Describe supramolecular principles applied to reactivity
- Describe principles for the rationalization of regio- or enantioselective reaction outcomes
- Apply knowledge regarding atoms such as silicon, phosphorous and sulfur in organic chemistry
- Describe basic metal-organic chemistry
- Apply knowledge in organic chemistry on pharmaceutical chemistry, biochemistry, polymer chemistry, environmental chemistry, cellulose technology and chemical engineering

Course contents

- 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 pharmaceutical chemistry, biochemistry, polymer chemistry, environmental chemistry, cellulose technology and chemical engineering

Course literature

Examination

- PRO1 - Project, 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.

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

Other requirements for final grade

The final grade will be the same as for the examination

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.