



KD2390 Selective Organic Synthesis

9.0 credits

Selektiv organisk syntes

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 KD2390 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

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 should be able to:

- describe basic chemo-, regio- and stereochemical concepts
- describe principles for selective synthesis, in particular for stereoselective synthesis
- explain the selectivity observed in chemical reactions
- suggest methods for selective synthesis of simple organic compounds, also containing stereogenic elements
- identify suitable reagents for selective transformations
- use retrosynthetic analysis for the construction of synthetic routes for simple organic compounds
- prepare organic compounds using advanced synthetic methodology

Course contents

- Fundamental concepts in chemo-, regio-, and stereoselectivity
- Synthetic strategy and principles for selective, in particular stereoselective, chemical transformations
- Transition metal catalysis
- Frontier orbital-controlled reactions
- Retrosynthetic analysis
- Advanced organic synthesis

Disposition

Lectures, classroom exercises, workshop and laboratory work.

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.

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.

Course literature

Clayden, Greeves and Warren Organic Chemistry, Oxford University Press, 2012 (ISBN 978-0-19-927029-3) and hand-out material

Examination

- LAB1 - Laboratory Work, 2.5 credits, grading scale: P, F
- TEN1 - Examination, 6.5 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

Examination (TEN1; 6,5 credits)

Laboratory Work (LAB1; 2,5 credits)

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.