



LUNDS UNIVERSITET  
Lunds Tekniska Högskola

*Course syllabus*

## Organisk kemi - teori Organic Chemistry - Theory

**KOKN05, 7,5 credits, A (Second Cycle)**

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED B/K

Date of Decision: 2023-04-18

### General Information

Main field: Pharmaceutical Technology.

Elective Compulsory for: MLAK1

Elective for: B4-l, K4-m, K4-l, N4

Language of instruction: The course will be given in English on demand

### Aim

The aim of the course is to give advanced knowledge in synthetic organic chemistry and knowledge in physical organic chemistry.

### Learning outcomes

#### *Knowledge and understanding*

For a passing grade the student must

- be able to identify and name important organic reactions.
- be able to explain the outcome of organic reactions.

#### *Competences and skills*

For a passing grade the student must

- show ability to explain basic acid-base properties as well as the nucleophilicity and electrophilicity of organic compounds outgoing from molecular structure and frontier orbitals.
- show ability to predict reactivity in simple organic compounds outgoing from fundamental principles of organic chemistry.
- show ability to describe organic reactions in terms of frontier orbitals.
- show ability to plan and evaluate multi-step synthesis via basic retrosynthetic analysis.

- show ability to discuss, orally and in writing, organic reactions with regards to mechanism and selectivity.

### *Judgement and approach*

For a passing grade the student must

- show ability to judge possibilities, limitations and risks associated with the application of organic synthesis and organic compounds.

## Contents

The course comprises fundamental organic reactions analyzed on an advanced level with emphasis on chemo-, regio-, and diastereoselectivity. Structure and reactivity for organic compounds are analyzed in terms of stereochemistry and chemical bond theory. The outcome of chemical reactions is discussed outgoing from a mechanistic perspective, which often includes analysis in orbital terms. Synthetic routes for the preparation of simple organic structures are designed outgoing from basic organic reactions and fundamental principles of reactivity and selectivity.

The ability to present organic reactions orally to other students is emphasized throughout the course.

## Examination details

**Grading scale:** TH - (U,3,4,5) - (Fail, Three, Four, Five)

**Assessment:** Continuous examination with passed tests and a passed assignment. The final grading is decided based on that more than 50% of the total points from all parts are required for a passing grade 3, 65% gives grade 4, and 80% gives grade 5. Failed continuous examination requires that a written final exam is passed on which the final grading is decided based on that more than 50% of the total points are required for a passing grade 3, 65% gives grade 4, and 80% gives grade 5.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

### Parts

**Code:** 0119. **Name:** Theory.

**Credits:** 5. **Grading scale:** TH. **Assessment:** For a passing grade the student must pass written tests. The grading is decided based on that at least 25% of the points on each test is needed to pass and that at least 50% of the total points from all tests are required for a passing grade, 65% gives grade 4, and 80% gives grade 5.

**Code:** 0219. **Name:** Assignment.

**Credits:** 2,5. **Grading scale:** TH. **Assessment:** For a passing grade the student must pass an assignment. The grading is decided based on that at least 50% of the points are required for a passing grade 3, 65% gives grade 4, and 80% gives grade 5.

## Admission

**Admission requirements:**

- KOKA25 Organic Chemistry or KOKA30 General, Inorganic and Organic Chemistry

**The number of participants is limited to:** No

**The course overlaps following course/s:** KOK020, KOK021, KOK090

## **Reading list**

- Clayden, J, Greeves, N, Warren, S: Organic chemistry. Oxford University Press, 2012, ISBN: 9780199270293.

## **Contact and other information**

**Course coordinator:** Ulf Nilsson, [Ulf.Nilsson@chem.lu.se](mailto:Ulf.Nilsson@chem.lu.se)

**Course homepage:** <http://canvas.education.lu.se>