



Kursplan

för forskarkurs

General Organic Chemistry

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10.0 Högskolepoäng

10.0 ECTS credits

Kurskod:

KO40001

Gäller från:

VT 2020

Institution

Institutionen för organisk kemi

Förkunskapskrav och andra villkor för tillträde till programmet

Admitted to PhD studies

This course is mandatory for PhD students admitted after 2017-06-12.

Lärandemål

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

- Understand the molecular orbital basis of chemical bonding
- Analyze simple potential energy surfaces of chemical reactions and relate them to experiments in terms of transition state theory
- Propose suitable NMR experiments for structural elucidation of organic compounds
- Demonstrate knowledge in the photophysical principles and recent photoredox catalysis manifolds, including the analysis, evaluation and design of basic mechanistic studies in these systems
- Understand the difference in reactivity between precious and base metals. Identify the key features of base metal catalysts in synthetic methods. Develop critical thinking about current beliefs in base-metal catalysis.
- Demonstrate knowledge of the principles of crystallography
- Understand the difference in reactivity between precious and base metals. Identify the key features of base metal catalysts in synthetic methods. Develop critical thinking about current beliefs in base-metal catalysis.
- Demonstrate knowledge of the principles of organocatalytic reactions and mechanisms
- Analyze chemical reactions and syntheses from principles of green or/and sustainable chemistry
- Demonstrate knowledge of some of the principles of medicinal chemistry and the interactions between the ligand and a target protein
- Be able to search for synthesis routes and references in databases, and to handle references and bibliometric data
- Demonstrate general knowledge in computer language and algorithms used in cheminformatics (CASD).

Innehåll

The aim of the course is to provide the students a broad understanding of organic chemistry. The course provides the students with a general introduction and basic understanding of areas such as chemical bonding, computational chemistry, spectroscopy, X-ray structure analysis, catalysis, photoredox chemistry, organocatalysis, green&sustainable chemistry, chemical biology, computer aided literature search and computer aided synthesis planning.

Obligatoriska moment

Participation in lectures and seminars is compulsory. In the event of special circumstances, the examiner may, after consultation with the teacher concerned, grant a student exemption from the obligation to participate in

certain compulsory instruction.

Examinationsformer

The course is examined as follows:

Knowledge assessment takes the form of a written exam and participation in seminars.

The course and examination language is English.

Grading (passed or failed) is related to the intended learning outcomes.

Grading criteria are handed out at the start of the course.

Students who receive a failing grade on a regular examination are allowed to retake the examination as long as the course is still given. The number of examination opportunities is not limited. Other mandatory course elements are equated with examinations. A student who has failed the examination twice is entitled to have another examiner appointed, unless there are special reasons to the contrary. Such requests should be made to the department board.

The course has at least two examination occasions per year when the course is given.

Arbetsform

Instruction (in English) consists of lectures and seminars.