

Medicinal Natural Products

Programme course

6 credits

Naturproduktskemi och läkemedel

NKEC22

Valid from: 2017 Spring semester

Determined by

Board of Studies for Chemistry, Biology
and Biotechnology

Date determined

2017-01-25

Offered for the last time

Autumn semester 2023

Main field of study

Chemical Biology, Chemistry

Course level

First cycle

Advancement level

G2X

Course offered for

- Chemical Analysis Engineering, B Sc in Engineering
- Chemical Biology
- Chemistry

Entry requirements

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites

Organic Chemistry, Biochemistry

Intended learning outcomes

The course aims to provide knowledge and understanding of organic chemistry, with emphasis on natural products and demonstrate the relationship between molecular structure and reactivity of the various transformations. After completing this course the student

- have basic knowledge in natural product chemistry: structure, classification and biosynthesis of secondary metabolites
- can make connection between the reactions and mechanisms that apply to both synthetic chemistry biosynthesis
- have knowledge of the medically important natural product origin, production, and identification, control and use
- have knowledge of medical uses and effects inc. toxicity of herbal remedies
- have knowledge of modern analytical methods for identification of natural products
- use laboratory organic analysis and synthesis techniques and be able to explain how chemicals are used in an environmentally way for sustainable development

Course content

The course covers the basic theory of molecular structure, mechanisms and stereochemistry with special emphasis on natural products. Biosynthesis of secondary metabolites from a chemical point of view and examples of their function in living material, organic reactions in terms of binding and reaction types and comparison with biosynthetic processes. Furthermore, synthesis planning and strategy for the synthesis of natural products and pharmaceuticals, as well as methods for isolation and analysis of natural products.

The laboratory sessions are designed to provide basic knowledge in organic chemical methodology and includes synthesis, and identification and analysis of organic compounds of biosynthetic origin.

Teaching and working methods

The course includes lectures, seminars and laboratory work.

Examination

| | | | |
|------|---|-------------|------------|
| LAB1 | A laboratory course with theory examination | 1.5 credits | U, G |
| TEN1 | Written examination | 4.5 credits | U, 3, 4, 5 |

Grades

Four-grade scale, LiU, U, 3, 4, 5

Department

Institutionen för fysik, kemi och biologi

Director of Studies or equivalent

Magdalena Svensson

Examiner

Peter Konradsson

Education components

Preliminary scheduled hours: 80 h

Recommended self-study hours: 80 h

Course literature

Dewick P.M. - Medicinal Natural products- A Biosynthetic Approach 3rdEd.
(Wiley) Laborationsmaterial från institutionen

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://stydokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.