

# Biochemistry 2

Programme course

6 credits

Biokemi 2

TFKE36

Valid from: 2017 Spring semester

**Determined by**

Board of Studies for Chemistry, Biology  
and Biotechnology

**Date determined**

2017-01-25

## Main field of study

Biotechnology, Chemical Biology, Chemistry

## Course level

First cycle

## Advancement level

G2X

## Course offered for

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

General chemistry, Organic chemistry 1 and Biochemistry 1

## Intended learning outcomes

The objective of the course is to give comprehensive knowledge within the following areas: Enzyme kinetics, enzyme mechanisms and methodology for characterization of enzymes. After studies well learned the student will have proficiency to:

- Calculate kinetic parameters like  $k_{cat}$ ,  $K_M$ ,  $V_{max}$  and  $K_I$ .
- Interpret the meaning of kinetic parameters in terms of enzyme function.
- Recapitulate the reaction mechanism for some enzymes.
- Explore fundamental laboratory techniques and interpret the obtained data in a written report.

## Course content

Theory: Structure and function of enzymes. Protein folding, enzyme kinetics with different types of inhibitions. Factors causing enzyme catalysis, characterization of the active site, examples of the reaction mechanisms of certain enzymes.

Laborations: Purification of a protein with ionic exchange chromatography.

Functional analysis of enzymes: Enzyme activity measurement, pH-dependance, chromatogram, kinetic- and spectrophotometric studies.

## Teaching and working methods

The theory is mainly presented in lectures. Solving of problems, discussions of theoretical and practical aspects of experiments in the laboratory are performed in lessons. Theoretical and practical aspects of biochemistry are illustrated in the laboratory course. The results of the experimental work should be presented and discussed in written reports.

## Examination

LAB1	Laboratory work	2 credits	U, G
TEN1	Written examination	4 credits	U, 3, 4, 5

The exercises of the written examination and the test elucidate how well the student perform the demands of the course.

## Grades

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

## Other information

Supplementary courses: Protein Chemistry

## Department

Institutionen för fysik, kemi och biologi

## Director of Studies or equivalent

Magdalena Svensson

## Examiner

Magdalena Svensson

## Education components

Preliminary scheduled hours: 46 h

Recommended self-study hours: 114 h

## 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](http://stydokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva).