

Biochemistry 1

Programme course

6 credits

Biokemi 1

NKEA08

Valid from: 2017 Spring semester

Determined by

Board of Studies for Chemistry, Biology
and Biotechnology

Date determined

2017-01-25

Main field of study

Chemical Biology, Chemistry

Course level

First cycle

Advancement level

G1X

Course offered for

- Chemical Biology, M Sc in Engineering
- Engineering Biology, M Sc in Engineering
- Biology, Bachelor's Programme
- Chemistry - Molecular Design, Bachelor's Programme

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 and Organic Chemistry

Intended learning outcomes

The course provides fundamental knowledge in biochemistry, including structure and function of biomolecules and metabolism in living cells. Separation and analytical techniques. After completing the course, the student will have proficiency in:

- giving the structure of the 20 most common amino acids found in proteins and their properties.
- describing the structure of proteins using the concepts; primary, secondary, tertiary and quaternary structure, and understanding how this is connected to the function.
- describing the catalytic function of enzymes.
- describe structure and function of nucleic acids and the central dogma in molecular biology
- describing the basic metabolism of carbohydrates and lipids, and knowing some examples of how it is controlled.
- performing common biochemical methods, like separation and analytical techniques interpreting the results and presenting them in a written report.
- knowing about the toxicity of some of the chemicals used and how to handle them.

Course content

Structure and properties of amino acids and proteins. Enzymology. Structure of nucleic acids and the processes replication, transcription and translation. Catabolism and anabolism of carbohydrates and lipids. Common biochemistry laboratory techniques including gel filtration, polyacrylamide gel electrophoresis and spectrophotometry.

Teaching and working methods

The theory is mainly presented in lectures. The laboratory course will give training in basic laboratory techniques and illustrate various theoretical aspects. A short written test is mandatory.

Examination

LAB1	Laboratory work and written test	1.5 credits	U, G
TEN1	Written examination	4.5 credits	U, 3, 4, 5

To pass the experimental part, the written reports and the short written test must be approved.

Grades

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

Other information

Supplementary courses: Biochemistry 2.

Department

Institutionen för fysik, kemi och biologi

Director of Studies or equivalent

Magdalena Svensson

Examiner

Helena Herbertsson

Education components

Preliminary scheduled hours: 50 h

Recommended self-study hours: 110 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.