Biochemistry

Programme course

6 credits

Biokemi

TFKI09

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 Engineering

Course level
First cycle

Advancement level
G1X

Course offered for
- Chemical Analysis Engineering, B Sc in Engineering

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 and biochemical/molecular biology laboratory techniques. After the course the student has proficiency to:

- draw the structure of the 20 most common amino acids found in proteins and their properties.
- describe the structure of proteins using the concepts; primary, secondary, tertiary and quaternary structure, and understand how this is connected to the function.
- calculate kinetic parameters like KM, Vmax and KI.
- interpretate the meaning of kinetic parameters in terms of enzyme function.
- recapitulate the reaction mechanism for some enzymes.
- give an overview of basic metabolism.
- describe the structure of nucleic acids.
- describe the genetic information flow from DNA to protein.
- use common biochemical/molecular biology laboratory techniques, interpret the results in a laboratory report and know about the toxicity of the chemicals used in the laboratory course.

Course content

- Structure and function of proteins.
- Enzyme kinetics and mechanisms.
- Structure and function of nucleic acids and molecular genetics.
- Introduction to metabolism in living cells.
- Separation and analytical techniques within biochemistry.
- Biochemical laboratory techniques and safety precautions considering chemicals used in the laboratory course.

Teaching and working methods

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

Examination

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

To pass the laboratory course, a short written test must be approved.

Grades

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

Department

Institutionen för fysik, kemi och biologi

Director of Studies or equivalent

Magdalena Svensson

Examiner

Ann-Christin Brorsson

Education components

Preliminary scheduled hours: 55 h
Recommended self-study hours: 105 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://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.