



BB1150 Biochemistry 1 7.5 credits

Biokemi 1

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for BB1150 valid from Autumn 2014

Grading scale

A, B, C, D, E, FX, F

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

The upper-secondary school before 1 July 2011 and adult education at upper-secondary level before 1 July 2012

Specific entry requirements: mathematics E, physics B and chemistry A. The grade Passed or 3 inn each of the subjects is required .

The upper-secondary school from 1 July 2011 and adult education at upper-secondary level from 1 July 2012 (Gy2011)

Specific entry requirements: Physics 2, Chemistry 1 and Mathematics 4. Minimum requirement is a pass grade.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The objective of the course is to provide fundamental knowledge in biochemistry with focus on carbohydrate metabolism and relevant biomolecules.

After passing the course, the student should be able to describe:

- Relevant biomolecules: Name, function, property, structure, chemical bonds, isomers and functional groups
- Proteins: Function, structure, structural levels and structural motifs
- Enzymes: Classification, catalytic activity, catalytic strategies and part in the metabolism
- Cellular membranes: Structure and components
- Carbohydrate metabolism: Reaction pathways, regulation, localization and other incoming components
- The importance of biochemistry in a sustainable development

After passing the course, the student should have gained the following skills:

- Draw biochemical structures and reaction mechanisms by hand
- Perform fundamental biochemical labwork
- Perform fundamental experimental work in a sustainable manner considering to the environment, the human being and the society

Course contents

The aim of the course is to provide biochemical knowledge within following focus areas: **Biological building blocks; the structure and function of relevant biomolecules uppbyggnad; enzyme activities and catalytic strategies as well as carbohydrate metabolism for energy production by enzymatically coupled systems.**

The course describes:

- Chemical structures, functional groups and isomers
- Biological building blocks: Amino acids, nucleotides, monosaccharides and lipids
- Formation of macromolecules from building blocks (monomers)
- Relevant reaction mechanisms and different chemical bonds
- Protein formation, structure and function
- Enzymatic activity, function and part in the metabolism
- The structure of cell membranes with proteins, channels and pumps
- Carbohydrate metabolism from glycolysis to oxidative phosphorylation

Course literature

Biochemistry, 7:e upplagan, av Jeremy M. Berg, John L. Tymoczko och Lubert Stryer. ISBN: 9781429276351

Examination

- LABA - Laboratory, 1.0 credits, grading scale: P, F
- TENA - Written Exam, 6.5 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Other requirements for final grade

To pass the course the student must pass the examination (TENA) and pass the laboratory course (LABA).

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.