BB1230 Biochemistry 2 6.0 credits

Biokemi 2

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 BB1230 valid from Autumn 2021

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Completed course BB1150 Biochemistry 1.

Language of instruction

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

Intended learning outcomes

After completion of the course the student shall have

Knowledge and understanding to:

- Describe and explain properties of biomolecules in the cell with for example chemical names and structure formulas. (TEN1)
- Describe metabolic processes of the cell and explain their function. (TEN1)
- Execute biochemical laborations. (LAB1)

Abilities and skills to:

- Plan biochemical laborations. (LAB1)
- Report experiments in a report. (LAB1)

Values and approaches to:

- Evaluate the result of biochemical laborations. (LAB1)

For higher grades (A-D), a deeper knowledge in the different parts of the course is required and that the student can link, reason and apply knowledge to explain more complex biochemical questions. (TEN1).

Course contents

The course will give knowledge about the functions of cells from a biochemical perspective. It mainly focuses on metabolic pathways in the cell. The course also contains practical parts where the student learns how to characterize the properties of different enzymes.

The course consists of the following parts:

- The basic principles of metabolism.
- Enzyme mechanisms.
- Advanced carbohydrate metabolism (glycolysis, glyconeogenesis, pentosphosphate pathway, glycogen metabolism).
- Citric acid cycle and glyoxalate cycle.
- Bioenergetics.
- Oxidative phosphorylation – photo synthesis (photophosphorylation and Calvin cycle).
- Fatty acid and lipid metabolism.
- Amino acid metabolism.
- Degradation and synthesis of proteins
- Regulation of metabolism, hormonal control and signal transduction.
- Integration of metabolism.
- Planning and execution of a biochemical laboration.

Prerequisites equivalent to BB1030 Microbiology and KD1230 Organic chemistry, basic concept and practice are recommended.

Examination

- LAB1 - Laboratory Work, 1.0 credits, grading scale: P, F
- TEN1 - Written exam, 5.0 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, an approved exam (TEN1) and an approved laboratory course (LAB1) are required.

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.