CB1040 Introduction to Biotechnology 6.0 credits

Inledande bioteknik

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

The Head of School at CBH has decided on 2022-10-11 to adopt this syllabus to apply from VT 2023 (file number C-2022-2247).

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Mathematics 4, Physics 2, Chemistry 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 (Grade E) the student shall have

Knowledge and understanding to:

- Describe basic concepts in biotechnology. (TEN1, LAB1)
- Explain basic functions in cells. (TEN1)

Skills and abilities by being able to:

- Summarize the laboratory exercises performed in a report. (LAB1)

Values and approaches to:

- Illustrate sustainability goals and global challenges as well as the impact of biotechnology and the opportunity to contribute to the fulfillment of these goals.

For higher grades (A-D) a deeper knowledge and understanding of the course's contents and the ability to combine knowledge from the course's different parts to solve more complex biotechnological questions. (TEN1)

Course contents

The course in introductory biotechnology provides an orientation on cell biology and chemistry and on how central molecular biology tools and methods can be used in medical and technical applications.

The course consists of the following parts:

- The structure, sub-structures and organization of prokaryotic and eukaryotic cells.
- The catalytic function and role in metabolism of enzymes.
- The structure of building blocks of protein and nucleic acids.
- Detailed account of metabolic pathwauys, e.g. glycolysis and the citric acid cycle.
- Replication of DNA, transcription and translation.
- The most basic molecular biology methods.
- The structure of the genomes of prokaryotes and eukaryotes
- Transport of proteins in human cells
- The structure of the cell membrane and different types of transport mechanisms through membranes.

Examination

- LAB1 - Laboratory work, 0.5 credits, grading scale: P, F
- TEN1 - Written exam, 5.5 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.

The course is examined with a written exam and laboratory work.

Other requirements for final grade

To pass the course, active participation in lectures, laboratory work and an approved written exam is required.

Transitional regulations

The course is an overlap with BB1010.

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.