



# HL2025 Structural Biology and Cell Biology 9.0 credits

Strukturbiologi och cellbiologi

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

## Establishment

Course syllabus for HL2025 valid from Spring 2010

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Medical Engineering

## Specific prerequisites

Bachelor's degree in Engineering Physics, Electrical Engineering, Computer Science or equivalent. Basic knowledge of anatomy.

## Language of instruction

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

## Intended learning outcomes

In the living cell, thousands of molecular components are working together in a coordinated way to produce a variety of phenomena necessary for the survival of an organism. Malfunctions may lead to severe pathological conditions.

The purpose of this course is to provide the basic knowledge that is necessary for understanding fundamental relationships between biological structure and function at cellular and molecular levels. It will also be demonstrated why several of these objects are of such fundamental interest for applications of the biophysical imaging methods described later in the master course programme.

## Course contents

Topics that will be covered include:

Protein structure and function

Nucleic Acids, the Genetic Code, and the Synthesis of Macromolecules

Biomembranes and the Subcellular Organization of Eukaryotic Cell

Transport across Cell Membranes

Cellular Energetics

Cell motility

Nerve cells

## Course literature

Alberts et al. Molecular Biology of the Cell, Taylor and Francis Inc, ISBN10: 0815341067

Supplementary handouts.

## Examination

- TEN1 - Examination, 7.5 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 1.5 credits, grading scale: P, 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.

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

## **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.