HL2025 Structural Biology and Cell Biology 9.0 credits

Strukturbiologi och cellbiologi

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 HL2025 valid from Spring 2013

Grading scale

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

Education cycle

Second cycle

Main field of study

Medical Engineering

Specific prerequisites

Bachelor's degree corresponding to 180 ECTS. Knowledge in biochemistry corresponding to BB1010, Introduction to biotechnology

Language of instruction

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

Intended learning outcomes

In the cell, biomolecular pathways are coordinated for survival of the cell. The cells in turn must cooperate with each other and the environment for survival and reproduction of multicellular organisms like ourselves. Problems with functionality on all levels may lead to severe pathological conditions.

The need to understand these processes and for knowledge on what the building stones actually look like both on macro- and micro levels have pushed the technology forward enormously in medical imaging for the benefit of other medical techniques.

After the course the participants will be able to:

- To describe biomolecular structure on an atomic level and how stuctural motifs can relate to biological function, both in writing and by using interactive molecular graphics software

- Outline genetic mechanisms, genetic information flow and the different levels of inheritable information.

- Explain how cellular processes and differentiation relate to sub-cellular components and their organisation as well as analyse how cells interact in a social context (with another cell or a biomaterial for example) with focus on the eukaryote cell.

Course contents

The course is mainly a reading course. For the cell biology part there are lectures and five assignments. The structure biology part comprises lectures and two computer practicals. Furthermore the students will individually present a scientific article in a seminar.

Course literature

Lodish et al Molecular Biology of the cell, Macmillan Inc, 7th Ed,
ISBN-13:978-1-4641-0981-2

Examination

- LAB1 - Laboratory Work, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 7.5 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.

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.