SK2536 Laboratory techniques in Life Sciences 7.5 credits

Laborativa tekniker i livsvetenskaperna

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

Establishment

The head of school at the SCI school has decided on 14 October 2020 to establish this syllabus to apply from autumn 2020, registration number: S-2020-1476.

Grading scale

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

Education cycle

Second cycle

Main field of study

Engineering Physics

Specific prerequisites

Completed course SK1104 Classical Physics or SK1114 Electromagnetism and waves.
Completed course SK1105 Experimental physics or HE1200 Electrical engineering and measurement technology.

Language of instruction

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

Intended learning outcomes

After completing the course, the student should be able to:

- plan and perform cell culture, PCR, electrophoresis and labeling of cells for flow cytometry and microscope analysis.
- plan, calculate and prepare solutions, e.g. cell culture medium.
- describe the physical principles of PCR, electrophoresis and flow cytometry.
- describe equipment, tools and consumables needed for cell culture, PCR, electrophoresis and cell labeling.
- account for the different aspects of good practice when working in a cell and molecular biology laboratory.

Course contents

Cell culture laboratory: equipment, tools, consumables. Cell culture methods. Media and solutions. Contamination of cell cultures.

Measurement of cell viability. Good cell culture practice.

Electrophoresis, principles and applications for analysis of proteins in biological samples.

Quantification by densitometric methods.

PCR technology and applications in cell and molecular biology.

Labeling of cells for flow cytometry and microscope analysis with cytochemistry and immunocytochemistry.

Ethical and sustainability issues related to work in cell and molecular biology laboratory.

Examination

- LAB1 - Laboratory work, 5.0 credits, grading scale: P, F
- TEN1 - Written exam, 2.5 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.

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.