



BB2255 Applied Gene Technology 7.5 credits

Tillämpad genteknologi

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 BB2255 valid from Spring 2025

Grading scale

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

Education cycle

Second cycle

Main field of study

Biotechnology

Specific prerequisites

A bachelor's degree, corresponding to at least 180 ECTS credits, including at least a total of 20 ECTS Biotechnology, 20 ECTS Chemistry, and 20 ECTS Mathematics,

Language of instruction

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

Intended learning outcomes

On completion of the course, the students should be able to:

- Describe, illustrate and apply different techniques in the fields of genomics, transcriptomics and proteomics
- Describe, illustrate and apply different techniques used for high-throughput molecular biology studies
- Report orally and in writing within the subject
- Review and give constructive feedback on the reports within the subject

Course contents

The course aims to give detailed insight into the techniques and trends in the fields of genomics, transcriptomics and DNA-assisted proteomics. The focus of the course will thus be on describing, applying and relating state-of-the-art technologies within these fields. This will build up the necessary foundations for further understanding of association studies, forensics, population genetics, diagnostics, medicine and drug development.

The course will describe conventional strategies for whole genome sequencing, high throughput methods for typing of genetic variations, advanced techniques and platforms for massively parallel DNA sequencing and their applications including whole genome sequencing, exome sequencing and RNA sequencing. The course will also describe long-read sequencing technologies. A special focus will be on different methods for single cell profiling.

Examination

- TEN2 - Written exam, 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.