



CB202V Genome Medicine 3.0

credits

Genommedicin

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

Establishment

Grading scale

P, F

Education cycle

Second cycle

Main field of study

Biotechnology

Specific prerequisites

English 6 or equivalent, bachelor's degree in technology or science and 20 credits in biotechnology or life sciences.

Language of instruction

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

Intended learning outcomes

After the course, the student should be able to:

- Account for genome variation and related regulatory mechanisms in the context of health and disease
- Describe and summarise single and complex gene disorders
- Assess the functional impact of genetic and epigenetic variants in health and disease

Course contents

The course will be given online and aims to provide students an understanding of the use of genome and epigenome information in medicine. The course will give an advanced introduction to epigenetics and its role in health and disease. The following topics will be included in the course:

- Human Genome Organisation & Principles of Genetic Variation
- Principles of Gene Regulation and Epigenetics
- Single and multifactorial gene disorders

We will discuss the organisation and the type of mutations in the human genome. We will then look at its interplay with epigenetic mechanisms as well as the role of 3D structure of the genome in gene regulation. We will then focus on the genetic architecture of monogenic and complex diseases and strategies to find causative or contributing genetic factors involved in disease onset.

The student will work in a project to design a theoretical experiment setup to find the genetic causes of given diseases.

The course has pre-recorded lectures and there will be online meetings according to the schedule.

Examination

- DEL1 - Participation, 3.0 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.