



# BB1070 Genetics 6.0 credits

## Genetik

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

## Establishment

Course syllabus for BB1070 valid from Spring 2023

## Grading scale

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

## Education cycle

First cycle

## Main field of study

Biotechnology, Technology

## Specific prerequisites

7.5 credits in biochemistry, 7.5 credits in eukaryotic cell biology, 9 credits in microbiology and 7.5 credits in gene technology.

## Language of instruction

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

## Intended learning outcomes

After completion of the course the student shall have

Knowledge and understanding to:

- Describe the basic theories for the origin of life and the mechanisms of evolution.
- Describe architecture and evolution of eucaryote genomes.
- Describe the mechanisms behind genetic and epigenetic inheritance.
- Perform basic population genetic calculations.
- Describe how genetic variation originates and evolves, and discuss its medical consequences.

Values and approaches to:

- Evaluate and discuss scientific and popular science articles within genetics.

## Course contents

Genetics is the basis for most biological, medical and biotechnical subjects. Consequently, in order to optimally exploit biotechnical tools, knowledge about basic genetics is of great importance. This course aims to give a broad knowledge, from an evolutionary perspective, of how genetic variation is formed and inherited, and how it evolves.

A number of basic aspects of genetics will be studied, for example:

- The origins of life, and the “Tree of Life”: the origins, development and relationships (phylogeny) of all organisms.
- The mechanisms of evolution.
- The genetic difference between organisms: differences and similarities in the architecture and function of the genomes, and how this evolved through the evolution.
- Inheritance of genes and traits: different modes of inheritance (Mendelian, asexual and epigenetic) and their effect on the “success” of individuals and species.
- Inherited diseases: their causes and effects.
- Genetic differences between human populations: their historical origin and subsequent spread, and their medical importance.

## Examination

- SEM1 - Scientific discussion about articles, 1.0 credits, grading scale: P, F
- TEN2 - Written Exam, 5.0 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.