



# BB1190 Gene Technology 7.5 credits

## Genteknik

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 BB1190 valid from Autumn 2022

## Grading scale

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

## Education cycle

First cycle

## Main field of study

Technology

## Specific prerequisites

## 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 common techniques for synthesizing DNA of a given size
- List components of a prokaryotic gene and describe how each contributes to control of gene expression
- Describe DNA mutagenesis and explain its use in developing new drugs or enzymes
- Apply methods for performing DNA mutagenesis and identifying a DNA mutation using DNA sequencing

Skills and abilities to:

- Present and evaluate laboratory work in the form of a written report.

## Course contents

Relevant areas within molecular biology will be repeated and deepened. The tools and the methods that facilitate the molecular biotechnology will be treated. Different applications of molecular biotechnology will be highlighted. Examples of the course's different parts:

- transcription - and translational gene regulation
- recombinant DNA (enzymes, vectors, host cells)
- PCR techniques
- DNA-sequencing
- synthetic biology
- mutagenesis, genetic libraries
- screening and selection methods
- design of recombinant bioprocesses (promoters, vectors, host cells, gene fusions etc.)
- therapeutic strategies (vaccines, gene therapy, antibodies)
- DNA-based diagnostics
- A lab course where many of the technologies are tested practically; among others a strategic mutagenesis will be carried out with subsequent identification, sequence verification, and of categorization of relevant the clone.

## Examination

- LAB1 - Laboration, 1.5 credits, grading scale: P, F
- TEN1 - Written exam, 6.0 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.

## **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.