



CB1020 Project in Mathematical Modelling 3.0 credits

Projekt i matematisk modellering

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 CB1020 valid from Autumn 2024

Grading scale

P, F

Education cycle

First cycle

Main field of study

Technology

Additional regulations

There are courses that have all or part of the same content: BB1220 Projects in Biotechnology

Specific prerequisites

SF1625 Calculus in One Variable, SF1525 Basic Course in Numerical Methods, BB1000 Programming in Python.

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

Skills and abilities to:

- Plan and execute a simulation project in a group of 4-6 members and within agreed timeframes.
- Identify relevant information and critically assess and use it to design and execute the project.
- Implement a basic mathematical model in a computer program
- Demonstrate ability to present the aims, implementation, and results of the project in written and oral forms

Values and approaches to:

- Combine scientific disciplines within the project.
- Evaluate group work and the individual's own work effort towards the common goal, including the use of tools for project management, and the ability to stimulate self and group performance.
- Demonstrate a good ability to account for the knowledge, process, results and conclusions of the project work in a written report and oral presentation.

Course contents

The course aims to train abilities that are important for working in project form. The course provides basic knowledge of mathematical modeling and its role and use for biotechnology applications. The course provides basic knowledge in structured programming for the implementation of mathematical models. The course projects are interdisciplinary, targeting areas that are close to biotechnology.

The course includes:

- A discussion of the role of modeling in biotechnology
- The application of project management tools
- The design and implementation of a project in biotechnology with focus on mathematical modeling.
- Literature search and reference management
- Self-reflection based on group dynamics and processes
- Report writing

- Oral presentation

Examination

- PRO1 - Project work, 2.0 credits, grading scale: P, F
- UPP1 - Self reflection, 1.0 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.

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.