

BB2330 Plant Biotechnology 7.5 credits

Växtbioteknik

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 BB2330 valid from Autumn 2007

Grading scale

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

Education cycle

Second cycle

Main field of study

Biotechnology

Specific prerequisites

Language of instruction

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

Intended learning outcomes

The course will provide an overview of plant biotechnology with focus on industrial applications. The course will even provide basic knowledge in plant biology, plant molecular biology and plant biochemistry.

Upon completion of the course, the student will be able to:

- describe the plant cell, its characteristic organelles as well as the composition, structure and properties of the plant cell wall,
- describe the function of plant hormones and their physiological role during plant development and the plant's life cycle,
- describe plant hormone receptors and explain their cellular signaling,
- describe plant metabolic pathways such as carbohydrate and fatty acids
- describe the biosynthesis of plant polymers such as fibers, fats and starch
- describe current regulations regarding production and use of GMOs in Sweden and the world
- describe different methods for transformation of plants or plant cells, including their specific advantages and applications,
- give examples of, and describe, plant biotech applications within forestry, agriculture, and production of new materials, pharmaceuticals and bio-fuels,
- research an application of plant or forestry biotechnology and present the results in a well-structured oral presentation as well as in written form
- present and discuss a laboratory experiment in written form

Course contents

The course comprises introductory plant biology followed by plant biotechnology. Selected topics include Plant anatomy, development and life cycle, Plant physiology and hormones, Plant biochemistry and metabolism, GMO-regulations, Techniques for transformation of plants or plant cells, Stress, pathogen and herbicide tolerance, Improved nutritional content and functional foods, Forest biotechnology, Plants as green factories: production of plastics, fats/oils, fibers, proteins and biofuels.

Examination

- LAB1 Laboratory Work, 1.5 credits, grading scale: P, F
- LIT1 Literature Task, 1.5 credits, grading scale: P, F
- TEN1 Examination, 4.5 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.

Other requirements for final grade

Written exam (TEN1; 4.5 credits, grading scale A-F), participation in laboratory work and literature assignment with written report and oral presentation (LIT1; 1.5 credits, grading scale Pass/Fail).

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.