



FKF3240 The Chemistry of Wood 10.0 credits

Trädets kemi

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

Establishment

Course syllabus for FKF3240 valid from Spring 2018

Grading scale

G

Education cycle

Third cycle

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 will have a thorough knowledge of:

- Different phylogenetic groups of plant and plant evolution.
- Basic biology of plants

- Wood and plant fibre morphology
- Carbohydrate classification and chemistry
- Structure and properties of cellulose, hemicelluloses, pectin, lignin, extractives and inorganic wood content.
- Biosynthesis of wood and wood components.
- Wood degrading microorganisms and their enzymes.

The goals of the course are important from sustainability point of view, since plant biomass is one of the most important renewable resources, and knowledge of their chemistry and morphology is central for different types of technical application within a sustainable technical culture.

Course contents

Evolution of plant kingdom and different phylogenetic groups of plants, biology of plants, overview of forestry, morphology of wood and wood cells, morphology and application of non-wood plant fibers, carbohydrate chemistry, cellulose structure and properties, structure and properties of hemicelluloses and pectin, lignin structure and properties, lignin carbohydrate networks, different groups of extractives and their properties, inorganic content in wood, biosynthesis of plant cell wall polysaccharides and lignin, different groups of wood degrading microorganisms and their properties, enzymes degrading wood polymers, overview of technical use of enzymes in the pulp and paper industry.

Course literature

Ljungberg textbook of pulp and paper (Chapter 2-7, 9-11, 90 and 93.

Examination

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.

Written or oral examination. Grad scale P, F.

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.