Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

SLUkurs

Syllabus

PFS0138 Wood Biology and Biotechnology, 3.0 credits

Syllabus approved

2016-11-08

Subjects

Biology

Education cycle

Third cycle

Grading scale

Pass / Failed
The requirements for attaining different grades are described in the course assessment criteria which are contained in a supplement to the course syllabus. Current information on assessment criteria shall be made available at the start of the course.

Language

English

Prior knowledge

The knowledge of biology and biochemistry or microbiology at the bachelor level is required, for example, 60 ECTS in Biology including 7.5 ECTS in Cell biology and 15 ECTS Chemistry, or the equivalent.

Objective, including learning outcomes

Knowledge
- Understanding how the wood tissue is formed

- Understanding the basic wood chemical composition and cell wall organization
- Understanding the principles of molecular and hormonal regulation of wood formation
- Understanding the principles of biosynthesis of the main cell wall components of wood, and their functions
- Knowledge about the wood and cell wall analysis technologies

Skills

- Be able to design a program for functional studies of genes involved in wood formation
- Be able to identify different anatomical features of wood
- Be able to use bioinformatics resources for wood formation studies.

Competence

- Be able to evaluate feasibility of different biotechnological manipulations of wood for different end-uses
- Be able to suggest approaches to reach the biotechnological goal

Content

The course is focused on biological processes leading to wood formation. It will include lectures and seminars covering the wood cellular organization and chemical composition, molecular and hormonal control of wood development, biosynthesis of plant cell walls, the overview of different methods of wood cell and cell wall analysis, model systems and bioinformatics resources to study wood biology. Practical demonstrations of current state-of-the art methods for analysis of wood, and hands-on experience with bioinformatics tools available and with wood microscopy will be included.

Requirements for examination

Open book written exam. Grades: fail or pass..

Additional information

The students will receive literature to read before or after the course, and should bring a poster related to their PhD project.
The course includes mostly lectures, practical activities, and science discussion at the poster session. There will be also demonstrations of techniques, and seminars

Responsible department

Department of Forest Genetics and Plant Physiology