Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

SLUkurs

Syllabus

PLS0085 Common Microscopy Methods in Biological Research, 3.0 credits

Syllabus approved

2021-05-24

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

Admitted to research education

Objective, including learning outcomes

Visualization and understanding of morphological and cellular structures is of importance in biological research as well as for applications such as bio-based

materials. The aim of the course is to give a brief theoretical background to and hands-on training on common low and high-resolution microscopy methods. A short introduction and hands-on training of optical and electron microscopy as well as fluorescence and confocal laser scanning microscopy is included. Special emphasis is given on how to prepare plant material for microscopy, but the course is applicable for any type of biological material.

Learning outcomes
On completion of the course, the student will
- have gained overview of common microscopy methods
- have understanding on sample preparation for microscopy
- have some experience on using different microscopes
- be able to plan for microscopy applications in their own projects

Content

Sample preparation for different types of microscopy will be discussed. Participants can use their own material to certain extent during training sessions. Case-studies highlight how microscopy methods can be applied in research. The course is completed with a round-table discussion where the participants discuss given case studies and present possible applications of microscopy in their own projects. The course is planned as a part of the series of Postgraduate Courses in the Life Sciences, and located partly in Lund University, Department of Biology, and partly at SLU campus Alnarp, Department of Plant Protection Biology.

Requirements for examination

What is required to pass
To pass the course, a PhD student has participated in the course including discussion of case studies and a short presentation related to one's own project.

Additional information

Apply for course: https://www.cmps.lu.se/life-sciences/courses/electronic-application/

Deadline 7 June

Pedagogical form
Lectures, case studies, active participation in training sessions and discussions, and a presentation will prepare students for planning and applying microscopy methods

in their future projects.

Timetable
Preliminary: Day 1. Introduction, lecture and hands-on sample preparation. Day 2. Lecture electron microscopy and hands-on. Day 3. Lecture Confocal Laser Scanning Microscopy and hands-on. Day 4. Confocal microscopy hands-on. Preparation of presentations. Day 5. Demonstration. Presentations and a round-table discussion. Literature will be available beforehand.

What is required to pass
To pass the course, a PhD student has participated in the course including discussion of case studies and a short presentation related to one's own project.

Responsible department

Department of Plant Protection Biology