Plant Microbe Interactions, 6 ECTS 16 January – 16 March

Plants and microbes interact in many different ways. In the postgraduate course “Plant-microbe interactions”, interactions between plants and microbes are discussed on general and detailed level for both pathogenic and symbiotic interactions. Infection mechanisms, establishment of symbiotic relations, plant defence and stress responses as well as many important problems within agriculture, horticulture and forestry are brought up.

The course is supported by the graduate school Organism Biology and organized in collaboration with Helsinki University and Norwegian University of Life Sciences. The lectures are given by the three universities and shown through videoconference equipment to the distant sites. The postgraduate course is arranged as a part of the MSc course BI1002 “Plant-microbe interactions” and contains 21 lectures, literature studies using recent review articles, discussion of study questions and a final written exam.

The course runs from January 16 to March 16, 2018. To apply, please send an email to the course leader Daniel Hofius (daniel.hofius@slu.se) latest January 12. For further information, see attached schedule and course plan.

Syllabus

PNS0079 Plant-microbe interactions, 6.0 credits

Växt-mikrobinteraktioner

Syllabus approved 2010-12-07

Subjects: Biology, Education

Cycle: Third

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 course is primarily for PhD students within the SLU Graduate School in Organism Biology but will be open for all interested PhD students/researchers.

Objective, including learning outcomes

- After completion of the course the student is expected to be able to:
- comprehensively discuss interactions between plants and pathogenic fungi, bacteria and viruses as well as the defense reactions of the host plant (biotic stress)
- comprehensively discuss interactions between plants and non-pathogenic/symbiotic bacteria and fungi

- create hypotheses for why plants and microbes react in certain ways in pathogenic and symbiotic interactions
- demonstrate insight into the consequences, on population and ecosystem level, of compatible and incompatible interactions

Content

In the course, interactions between plants and microbes are discussed on general and detailed level for both pathogenic and symbiotic interactions. Infection mechanisms, defense of plants and stress responses and a large number of important problems within agriculture, horticulture and forestry are taken up. Examples are brought from ongoing research at SLU, Helsinki University and Norwegian University of Life Sciences and are presented by the researchers themselves. Topics that are covered are: - infection mechanisms; attachment; enzymes; the role of toxins and other compounds; invasion of plant tissue - establishment of symbiotic relations (mycorrhiza, rhizobium) - resistance mechanisms against attack by plant pathogens (including nematodes) and insects; gene-for-gene interactions; induced resistance; non-host resistance Requirements for examination Approved attendance in all activities and passed written exam.

Additional information:

https://www.slu.se/en/education/programmes-courses/courses/?sprak=en&kurskod=PNS0079 2/2

This course is given as a postgraduate course within the SLU Graduate School in Organism Biology in collaboration with Helsinki University and Norwegian University of Life Sciences. The lectures are given by the three universities and shown through videoconference equipment. The postgraduate course is arranged as a part of an MSc course at SLU. The right to take part in teaching and/or supervision only applies to the course date to which the student has been admitted and registered on. If there are special reasons, the student may take part in course components that require compulsory attendance at a later date.

For more information on this, please refer to the regulations for education at Bachelor's and Master's level.

Responsible department: Department of Plant Biology