Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

SLUkurs

Syllabus

PLG0035 Plant Protection Biology, 7.0 credits

Syllabus approved

2012-01-20

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

PhD students interested in e.g. (agro)ecology, entomology, plant breeding, nematology, mycology, plant protection, plant pathology, IPP/IPM, pest/pathogen and plant interactions.

Objective, including learning outcomes

The increasing environmental awareness, to some extent induced by the increasing number of reports on global climate change, has and will have a large impact on

management of future cropping systems, especially concerning plant protection. The overall objective of this course is to give PhD students from different subject areas (e.g. ecology, entomology, nematology, plant breeding etc.) a deeper understanding of challenges and constraints in relation to modern plant protection in different systems.

Content

The aim of the course is to bring together PhD students from different backgrounds (biology, agronomy, horticulture etc.) working on plant protection related areas. To make sure that they are on a comparable scientific level in the management strategy discussions, some days in the beginning will be devoted to introducing the fundamental aspects of the topic. Although this may seem broad and general for a PhD course, the level of the lectures will be adequate for the students. The lecturers will be asked to give a brief basic introduction to the field and then to move on and end with the latest results (will also be discussed during the evening literature seminars).
The following topics will be dealt with during the course: A comparison of the natural system and the cultivated system - why do different organisms become pests? Plant defence and resistance biology and breeding. Pests and pathogens (especially insects, nematodes, fungus) - ecology/population dynamics, life cycle etc. - some typical examples from each group. Crop loss assessment and presentation of different management methods, e.g. biological and chemical control, resistance breeding, chemical ecology/pheromones etc. Development of management strategies based on the different methods that are at hand - examples from different cropping systems - agriculture, horticulture and forest. Specific challenges in relation to global climate change.

Requirements for examination

Oral presentation of own research. Active participation in literature seminars and field excursions. Based on the course content (lectures, field observations and literature studies), a management strategy should be suggested for a given (virtual) cultivation system. The strategy should be presented orally at the end of the course as well as in a written report. Written reports should be handed in at the end of the course.

Additional information

Pedagogical approach
It is important that the students take active part in their own learning. Therefore

they will do a 'case study' (i.e. the virtual cultivation system mentioned above) that will be presented both orally - where all students should participate actively in the discussions - and as a written report. The work should be done in gropus so as to profit from the different expertises of the PhD students in the discussions and development of management strategies. In addition they will get a chance to practice oral presentation when they present their own research. The literature seminars will give them an opportunity to read recent and relevant literature (papers selected by the lecturers and handed out before the course) and to discuss - in smaller gropus - with each other and experienced scientists (the lecturers) within the area.

Learning outcome
By studying the biological aspects of plant protection - the natural system vs the cultivated system, plant defence, ecology/biology of the pests and pathogens, pest/pathogen-plant interactions, pest management methods and strategies - the students will, in addition to their own specialization, get a broad scientific basis for current and future work in relation to development of environmentally sustainable plant protection methods. They will become familiar with the latest results and trends within plant protection that will allow them to evaluate their own research in a broader perspective. Furthermore, influences and inputs from related fields may create new ideas, inspire to new approaches in ongoing projects. Whether, after finishing their PhD, the students stay in science or move on to other careers at e.g. National Boards of Agriculture, Länsstyrelser or similar insitutions, a broad knowledge of plant protection will be valuable.

Course organizer: Dept. of Plant Protection Biology, LTV-faculty, SLU.
Minimum of participants to give the course is 12.
Sign up for the course here: (http://www.plantlink.se/phd-course-plant-protection-biology-20-31-august-2018/)

Responsible department

Faculty of Landscape Architecture, Horticulture and Crop Production Science