SVERIGES LANTBRUKSUNIVERSITET

P000046, Fenotypisk analys (microarray) av mikrobiella renkulturer, 3.0 Hp

Kursplan

Fastställd av: Fastställd av: Vicedekan FU-LTV, 2023-09-11, 2023-09-11

Giltig från och med: 2023H

Utbildningsnivå:

Forskarnivå

Ämne:

- Horticulture
- Plant Protection Biology

Språk:

Svenska

Behörighetskrav:

Admitted to the PhD education.

Basic knowledge in biology, microbiology, horticulture, ecology, plant protection biology or related fields. Basic knowledge in R studio is mandatory.

Mål:

After completion of the course, the students should be able to:

- Demonstrate understanding of the physiological principles behind phenotypic microarray and associated ecological principles

- Demonstrate a good practical knowledge of the phenotypic microarray methodology and its limitations

- Demonstrate ability to be in command of planning and conducting phenotypic microarray as well as calculate and analyse obtained data

- Demonstrate ability to foresee pitfalls and develop solutions

- Demonstrate capacity to independently develop ideas for additional applications

Innehåll:

The course deals with microbial physiology and introduces students at postgraduate level to phenotyping of bacteria, fungi and human cell lines based on their capacity to metabolize sole nutrient sources. The course is divided into four sections: (i) theoretical (physiological background of phenotyping based on nutritional preferences, associated ecological principles), (ii) practical (preparing and running phenotypic micoarray using own isolates), (iii) calculation of data output and (iv) additional applications.

The course consist of a remote part and a laboratory training part conducted on the SLU campus in Alnarp. Laboratory training is alternated with lectures and workshops on basics and concepts related to phenotypic microarray. Both the remote and the on-site part are mandatory.

The remote part consists of literature preparations (3 days) and compiling of a study report (2 days). Each student will do hand-on training of phenotypic microarray using a bacterial pure culture, and participants are invited to bring a bacterial pure culture from their experimental work on the course. Retrieved data is analysed using R. The on-site part lasts 5 days.

There are two exams: the literature exam is given as a digital quiz prior to the hands-on training; the study report is handed in at the end of the course.

Examinationsformer och fordringar för godkänd kurs:

Examination

Passed quiz

Approved laboratory report

According to the grading criteria the student has passed if:

The candidate is in good command of the basic fact within the framework of the stipulated content

- 75% of the given answers in the digital quiz is correct.

The candidate is in good command of the basic fact and considerations for conducting phenotypic microarray

- 75% of the given answers in the digital quiz is correct.

Evaluate, calculate and discuss lab results using phenotypic microarray and present procedures and analysis in a writing in a scientific way.

Critically assess and analyze pitfalls and limitations as well as develop decisive solutions and present them in writing in a scientific way.

Present a graphical abstract for a future theme/problem applying phenotypic microarray as a technique. - Examinatorn har, om det finns skäl och är möjligt, rätt att ge en kompletteringsuppgift till den student som inte blivit godkänd på en examination. - Om studenten har ett beslut från SLU om riktat pedagogiskt stöd på grund av funktionsnedsättning, kan examinatorn ge ett anpassat prov eller låta studenten genomföra provet på ett alternativt sätt. - Om denna kursplan läggs ned, ska SLU besluta om övergångsbestämmelser för examination av studenter, som antagits enligt denna kursplan och ännu inte blivit godkända. - För examination av självständigt arbete (examensarbete) gäller dessutom att examinatorn kan tillåta studenten att göra kompletteringar efter inlämningsdatum. Mer information finns i utbildningshandboken.

Ansvarig institution/motsvarande:

Institutionen för biosystem och teknologi

Kompletterande uppgifter

Övrig information:

- Rätten att delta i undervisning och/eller handledning gäller endast det kurstillfälle, som studenten blivit antagen till och registrerad på.
- Om det finns särskilda skäl, har studenten rätt att delta i moment som kräver obligatorisk närvaro vid ett senare kurstillfälle. Mer information finns i utbildningshandboken.