

P000016, Understanding infectious diseases by fusing epidemiology, genetics and modelling, 3.0 Hp

Kursplan

Fastställd av: FUN, 2022-11-14

Giltig från och med: 2022H

Utbildningsnivå:

Forskarnivå

Ämne:

- Animal science

Språk:

Svenska

Behörighetskrav:

Admitted to a postgraduate program in animal science or veterinary medicine, medicine, biology or modelling, or to a residency program in veterinary science.

Mål:

On completion of the course, students should be able to

- understand and apply the basic principles of epidemiology, genetic analyses of disease data and epidemiological modelling
- understand challenges and opportunities for genetic and epidemiological analyses and modelling of infectious disease data

- evaluate different epidemiological prediction models and the potential impact of genetic selection for increased disease resistance or resilience
- assess the potential for genetic studies on disease resistance in livestock using field data and interpret the results of such studies in the context of population specific parameters

Innehåll:

The course is expected to provide advanced knowledge concerning infectious diseases and how epidemiology and genetics can be combined to study and handle such diseases. Focus is on the collection, curation, phenotypic analysis, modelling and genetic analysis of experimental and field data of infectious diseases in livestock, and humans. Infectious disease data are incomplete by its very nature and the course will clearly outline all the challenges related to handling these data and how to make meaningful inferences and prediction models. The course has a One Health perspective and it is primarily targeted at PhD students in epidemiology or quantitative genetics. However, PhD student, post-docs and other professionals with a background in animal, veterinary or medical sciences, or applied mathematics with a strong interest in data analyses and mathematical modelling are also encouraged to attend.

Students will read some introductory literature before the course week (2 days). The course week (5 days) consists of a series of lectures, exercises and discussions. Participants will work in groups and data labs during the day to get hands-on experience of the topics covered. R will be used for exercises. The students will also shortly present their own research project during the course. After the course week, the students will make an assignment where they relate knowledge from the course to their own research (2 days). This will be presented at an on-line workshop which ends the course (1 day).

Examinationsformer och fordringar för godkänd kurs:

In order to pass, the students need to 1) Give a short presentation about their own research. 2) Attend all of the provided lectures, tutorials and discussion groups. 3) Successfully complete at least 30% of the in-course exercises. 3) Perform and present an assignment and participate on-line when the assignments are presented. - 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 husdjursgenetik

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.