



## Course syllabus

Faculty of Health and Life Sciences

Department of Biology and Environmental Science

2BI510 Zoonotisk ekologi och epidemiologi, 15 högskolepoäng  
Zoonotic Ecology and Epidemiology, 15 credits

### **Main field of study**

Biology, Biomedical Science

### **Subject Group**

Biology

### **Level of classification**

First Level

### **Progression**

G2F

### **Date of Ratification**

Approved by Faculty of Health and Life Sciences 2015-01-12

The course syllabus is valid from spring semester 2015

### **Prerequisites**

Biology and Biomedical Science 60 credits, including Ecology 15 credits, Biochemistry 15 credits, Cellbiology 7,5 credits and Microbiology 7,5 credits, or equivalent.

## Objectives

After completing the course, the student should be able to:

- give an account on central definition and fundamental empirical patterns, theories and methods in infection ecology
- describe the lifecycles of a number of viruses, bacteria and parasites of concern for human and animal health
- describe the role of diseases in wild and domestic animal populations and in humans
- briefly describe fundamental pathogenicity of viral and bacterial pathogens
- give an account on models used to describe epidemiology and virulence
- discuss how population structures of animals and pathogens affect host specificity and epidemiology of diseases
- give an account for basic techniques for detection of and characterization of pathogenic microorganisms
- use data and statistical test to evaluate results and scientific hypotheses
- give an account for how scientific publications are constructed, and critically review the contents of scientific works

## Content

The course contains

*Module 1 Theory 9 credits*

Fundamental definitions in infection ecology  
Descriptions of disease-causing viruses, bacteria, fungi and parasites  
Global and regional patterns in diseases  
A historical perspective on the emergence of diseases during human civilization  
Adaptations and life-histories in microorganisms, and their effect on evolution, epidemiology and virulence of diseases  
The effect of host ecology and population structure on disease transmission and virulence  
Zoonotic infections in human and veterinary medicine  
Detection and characterization of zoonotic infections  
Models and theories in infection biology

### *Module 2 Literary essay 2 credits*

Literature searches and oral and written presentations.

### *Module 3 Projects and practicals 4 credits*

Laboratory practical aimed at detection and characterization of pathogens

Individual projects, including oral and written presentations

## **Type of Instruction**

Teaching includes lectures, seminars, excursions and laboratory exercises.

Seminars, excursions, laboratory exercises and practical assignments are compulsory.

## **Examination**

The course is assessed with the grades A, B, C, D, E, Fx or F.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail.

Theory (subcourse 1) will usually be assessed in one or more written examinations. A first reexamination should be offered within 6 semester weeks. Number of examinations is limited to 5. The grades are Fail (U), Pass (G) or Pass with Distinction (VG). Learning outcomes of subcourse 2 and 3 will be assessed by laboratory assignments, and by seminar presentations and written reports. The grades in subcourse 2 and 3 are Fail (U) or Pass (G).

The grades of the course are Fail (U), Pass (G) or Pass with Distinction (VG). For a G, all learning outcomes have to be achieved.

## **Course Evaluation**

Upon completion, the course will be evaluated by filling out the evaluation form. The result of the individual evaluations are turned into a summary report that will be kept in the department administrative archives. The outcome of the evaluation of the previous year, as well as possible measures taken, will be discussed with the head of department, as well as with incoming students at the start of the next course.

## **Credit Overlap**

This course cannot be part of a degree in combination with another course in which the content fully or partly correspond to the content of this course: 2BI010 Zoonotic Ecology and Epidemiology 15 credits.

## **Other**

Grade criteria for the A–F scale are communicated to the student through a special document. The student is to be informed about the grade criteria for the course by the start of the course at the latest.

## Required Reading and Additional Study Material

Wobeser, G.A. 2006. Essentials of Disease in Wild Animals. Blackwell Publishing. ISBN-10: 0-8138-0589-9, ISBN-13: 978-0-8138-0589-4

Scientific articles and field/laboratory instructions will be handed out during the course.

Colling, S. K. & Ray, C. 2006. Disease ecology – community structure and pathogen dynamics. Oxford University Press Inc.: New York. ISBN 0-19-856707-3

Källenius, G. & Svensson, S. B. 2001. Zoonoser. Studentlitteratur: Lund. ISBN 9789144012100