

# Infection Biology - Clinical Perspectives

Programme course

7.5 credits

Infektionsbiologi med kliniska perspektiv

8MEA04

Valid from: 2020 Spring semester

**Determined by**

The Board for First and Second Cycle Programmes at the Faculty of Health Sciences

**Date determined**

2012-12-07

**Revision date**

2014-10-06

## Main field of study

Medical Biology

## Course level

Second cycle

## Advancement level

A1X

## Course offered for

- Master's Programme in Experimental and Medical Biosciences

## Specific information

In this course the students will obtain advanced knowledge of infectious medicine, medical microbiology, and virology within the fields of chronic infections, biomaterials, global medicine, and perinatal infections. The course is elective semester two or four in the Master's Programme in Experimental and Medical Biosciences.

## Entry requirements

The special eligibility requirement is the possession of the Degree of Bachelor of Sciences in a major subject area with relevance for biomedical sciences. This could include previous studies at faculties of medicine, technology/natural sciences, odontology or veterinary medicine. A major part of courses included in the Bachelor degree should be in subjects such as biochemistry, cell biology, molecular biology, genetics, gene technology, microbiology, physiology, immunology, histology, anatomy, and pathology.

Applicants must also have documented skills in English corresponding to the level of English in Swedish upper secondary education (English B). For applicants who have not studied in Swedish upper secondary education, skills in English are normally attested to by means of an international language test.

## Intended learning outcomes

By the end of the course the students will be able to:

Knowledge and understanding

- Describe the mode of action of different microorganisms pathogenic to humans
- Define the interactions between the human host and the infectious agent, from molecular to clinical level and apply this knowledge to describe clinical manifestations
- Apply the principles of mode of actions of virulence factors on the defence of the human body

Competence and skills

- Design and carry out laboratory experiments to investigate molecular mechanisms in the interactions between microorganisms and human cells

Judgement and approach

- Understand, analyze and critically discuss scientific papers in the field of infection biology

## Course content

- Microorganisms infecting the human body
- The host response to infectious micro organisms
- Virulence strategies and mechanisms exerted by the pathogenic micro organism
- The ecology of human flora of microorganisms - normal flora and pathogens
- Microorganisms and the immune system
- Vaccines and vaccine development
- Antimicrobial agents and resistance to them
- Epidemiology of human infectious diseases
- Zoonosis
- Infectious diseases in the perspective of global medicine
- Emerging infectious diseases
- Infections and human genetics

## Teaching and working methods

General: Linköping University Master's Programme in Experimental and Medical Biosciences applies student-centered learning among which Problem Based Learning (PBL) is one pedagogical philosophy and method. To prepare the students for future employment, practical and experimental work in laboratory settings are important parts of the programme in courses as well as in individual projects.

Specific: In this course lectures, tutorial groups, seminars, study visits, demonstrations and laboratory work are used.

## Examination

### Compulsory items

Active participation in the compulsory parts is necessary to pass the course, and assessment of them is carried out continuously. Compulsory parts in this course are: tutorial groups, laboratory work, and demonstrations.

### Examination

Individual written examination.

Literature assignment including a written report and oral presentation of an in-depth study (group assignment with individual assessment).

### Scope of re-examination

The extent of a re-examination shall be similar to the regular examination.

### Change of examiners

Students who have failed the course or part of the course twice are entitled to request another examiner for the following examination occasion, unless specific reasons are present.

### Registration for examination

The procedure for registration should be stated prior to the commencement of each course. In other respects, regulations concerning examination and examiners are applied in accordance with Linköping University policy.

## Grades

Three-grade scale, U, G, VG

## Other information

The planning and implementation of a course must take its starting point in the wording of the course plan. The course evaluation included in each course must therefore take up the question how well the course agrees with the course plan.

The course is carried out in such a way that both men's and women's experience and knowledge is made visible and developed.

If the course is withdrawn, or is subject to major changes, examinations according to this course plan are normally offered on a total of three occasions within one year, one of them in close connection to the first examination.

## Department

Institutionen för biomedicinska och kliniska vetenskaper