

# Molecular Virology

Programme course

7.5 credits

Molekylär virologi

8MEA13

Valid from: 2017 Autumn semester

**Determined by**  
The Faculty Board at the Faculty of  
Health Sciences

**Date determined**  
2015-11-23

## 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 different aspects of virology – from the molecular basis of the virus life cycle to the importance of viruses in human medicine and the use of viruses in biotechnology and cell biology. The course is elective for semester three 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

After completion of the course, the student is expected to know:

Knowledge and understanding

- Explain the molecular details of the virus life cycle and identify the implications for human disease and treatment including gene therapy
- Explain the biotechnological importance and usage of viruses
- Relate and summarize different virological disciplines in a broader context

Competence and skills

- How to use bioinformatic tools for the study of virus evolution and epidemiology

Judgement and approach

- Analyse and critically evaluate scientific papers in the field of virology

## Course content

- Molecular mechanisms of the virus life cycle
- Emerging viruses and pandemics
- Virological methods in research
- Mechanisms of virus evolution
- Human viral diseases
- Viral immunology, antiviral therapy and vaccination
- Viral vectors and gene therapy
- Infection genetics and viral pathogenesis
- Bioinformatics

## Teaching and working methods

General: Linköping University Master's Programme in Experimental and Medical Biosciences applies student centred learning among which Problem Based Learning (PBL) is one pedagogical philosophy and method.

Specific: In this course, lectures, tutorial groups, seminars, group assignments, 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: seminar, tutorial groups and laboratory work.

### Examination

Individual written examination.

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

Oral presentation of laboratory work (group assignment with individual assessment).

### Scope of re-examination

The extent of the 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

Planning and implementation of the course is based on the wordings in the course syllabus. A course evaluation is mandatory for each course and should include the question whether the course is in agreement with the course syllabus.

The course is carried out in such a way that disabilities, ethnicity, gender and age are given prominence as relevant variables for analysis and discussion.

If the course is cancelled or undergoes major changes, examination is normally offered under this course syllabus, at a total of three occasions within a year, of which one in close proximity to the first examination.

### Certificate

Course certificates are issued by the Board of the Faculty of Medicine and Health Sciences when requested by the student.

## Department

Institutionen för klinisk och experimentell medicin