

Molecular Virology

Molekylär virologi

7.5 credits

Programme course

8MEA13

Valid from: 2022 Spring semester

Determined by	Main field of study	
Chairman of The Board for First and Second Cycle Programmes	Medical Biology	
Date determined	Course level	Progressive specialisation
2015-11-23	Second cycle	A1X
Revised by	Disciplinary domain	
	Medicine	
Revision date	Subject group	
2021-05-03	Medical Biology	
Offered first time	Offered for the last time	
Autumn semester 2016		
Department	Replaced by	
Institutionen för biomedicinska och kliniska vetenskaper		

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.

Course offered for

- 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).

Grades

The grades for the course are either fail (F), pass (G) or pass with distinction (VG). The grade for the individual written exam (F, G, VG) form the basis for the final grade of the course.

If special circumstances prevail, and if it is possible with consideration of the nature of the compulsory component, the examiner may decide to replace the

compulsory component with another equivalent component.

Application for examination

Instructions on how to apply for examinations are given prior to the beginning of each course.

Re-examination

The date for re-examination should normally be announced by the date of the regular examination at latest; in which case the scope must be the same as at the regular examination.

Examination for students with disabilities

If the LiU coordinator for students with disabilities has granted a student the right to an adapted examination for a written examination in an examination hall, the student has the right to it.

If the coordinator has recommended for the student an adapted examination or alternative form of examination, the examiner may grant this if the examiner assesses that it is possible, based on consideration of the course objectives.

An examiner may also decide that an adapted examination or alternative form of examination if the examiner assessed that special circumstances prevail, and the examiner assesses that it is possible while maintaining the objectives of the course.

Nomination of another examiner

A student who has taken two examinations in a course or a part of a course without obtaining a pass grade is entitled to the nomination of another examiner, unless there are special reasons to the contrary.

Grades

Three-grade scale, U, G, VG

Other information

Planning and implementation of the course is to be based on the wordings in the course syllabus. A course evaluation is compulsory for each course and should include how the course is in agreement with the course syllabus. The course coordinator will analyse the course evaluation and propose appropriate development of the course. The analysis and proposal will be returned to the students, the Director of Studies, and as needed to the Education Board, if related to general development and improvement.

The course is carried out in such a way that knowledge of gender, gender identity/expression, ethnicity, religion or other belief system, disability, sexual orientation and age is addressed, highlighted and communicated as part of the programme.

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