Molecular Virology

Molekylär virologi
7.5 credits

Single subject course

8FA237

Valid from: 2022 Spring semester

Determined by	**Main field of study**	
The Board for First and Second Cycle Programmes at the Faculty of Medicine and Health Sciences	Medical Biology	
Date determined	**Course level**	**Progressive specialisation**
2015-11-23	Second cycle	A1X
Revised by	**Disciplinary domain**	
Chairman of The Board for First and Second Cycle Programmes	Medicine	
Revision date	**Subject group**	
2021-08-16	Medical Biology	
Offered first time	**Offered for the last time**	
Autumn semester 2016		
Department	**Replaced by**	
Institutionen för biomedicinska och kliniska vetenskaper		

Entry requirements

- Bachelor's degree in a major subject area with relevance for biomedical sciences, equivalent to a Swedish Kandidatexamen with at least 90ECTS credits in the following subjects:
  -biochemistry
  -cell biology
  -molecular biology
  -genetics
  -gene technology
  -microbiology
  -physiology
  -immunology
  -histology
  -anatomy
  -pathology
- English corresponding to the level of English in Swedish upper secondary education (Engelska 6)
  Exemption from Swedish

Intended learning outcomes

INTRODUCTION
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.

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 virurses
- 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

COURSE CONTENTS

- 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

TEACHING AND WORKING METHODS

General: The Faculty of Medicine and Health Sciences at Linköping University 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).

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 conducted in such a way that there are equal opportunities with regard to sex, transgender identity or expression, ethnicity, religion or other belief, disability, sexual orientation and age.

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.

If special circumstances prevail, the vice-chancellor may in a special decision specify the preconditions for temporary deviations from this course syllabus, and delegate the right to take such decisions.