

# Medical Microbiology

Programme course

6.0 credits

Medicinsk mikrobiologi

8BKG24

Valid from: 2020 Spring semester

**Determined by**  
Chairman of The Board for First and  
Second Cycle Programmes

**Date determined**  
2017-08-22

**Revision date**  
2020-09-11

## Main field of study

Medical Biology

## Course level

First cycle

## Advancement level

G1X

## Course offered for

- Experimental and Industrial Biomedicine

## Entry requirements

General entry requirements for undergraduate studies  
and

English corresponding to the level of English in Swedish upper secondary  
education (English 6)

And

Chemistry, Mathematics and Biology corresponding to the level in Swedish upper  
secondary education (Chemistry 2, Mathematic 4 and Biology 2)

Exemption from Swedish 3

## Intended learning outcomes

### Knowledge and understanding

On completion of the course, the student shall be able to:

- Describe the basic characteristics of microorganisms as well as the structure, properties and function of the biomolecules of these microorganisms.
- Describe the significance of the normal human flora and their pathogenic ability of microorganisms.
- Describe and exemplify how microorganisms can be used in the context of biotechnology, food production, diagnostics and the environment.
- Explain how the proliferation of microorganisms and transmission of infection can be restricted.
- Describe the basic organisation of the immune system in order to explain how it protects against pathogenic microorganisms.

### Skills and abilities

On completion of the course, the student shall be able to:

- Apply biomedical laboratory techniques in order to study the structure and function of microorganisms.
- Document and present results from microbiological laboratory work orally as well as in writing.
- Use aseptic and sterile methodology when working with microorganisms.

### Judgement ability and approach

On completion of the course, the student shall be able to:

- Demonstrate a critical approach to seeking relevant information in the field of medical microbiology.

## Course content

The course involves the study of basic medical microbiology, with a focus on the structure and function of prokaryotic cells and on the interaction between humans and microorganisms. This includes study of microorganisms (viruses, bacteria and fungi), pathogenesis, and strategies for treatment using antibiotics and antiviral drugs. The use of microorganisms within the fields including biotechnology and medical research is also studied. The course prepares the student for more advanced study of the body's immune response to various diseases. The course covers medical microbiology, virology, basic immunology, pharmacology, good laboratory practice (GLP), which are integrated with methodology used within clinical microbiology laboratory medicine.

## Teaching and working methods

At the Faculty of Medicine and Health Sciences student centred and problem based learning make up the foundation of the teaching. The student takes responsibility for, studies and researches current content of the courses and study programme. The methods of the course work challenge the students to independently formulate questions for learning, to seek knowledge and in dialogue with others judge and evaluate achieved knowledge. Students in the Bachelor's programme in Experimental and Industrial Biomedicine work together in groups based on reality based and course related biomedical issues to apply their knowledges, develop their own learning, contribute to the fellow students' learning and to practice cooperation. Throughout the study programme theory is integrated with practical modules. The course methods and integration modules stimulates and support the student's ability to apply their knowledge and professional competence.

The work methods in this course are lectures, seminars and laboratory sessions.

## Examination

The forms of examination are one individual written and one individual practical exam. In addition, active participation in compulsory components is required to pass the course. Compulsory elements include laboratory sessions, seminars, reports and written assignments.

Resource-demanding examinations, in this syllabus the individual practical examination, are limited to five attempts. The written examination may be performed an unlimited number of times by those students who have not achieved a passing grade.

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/written exam**

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

### **Retake 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 of students with functional disability**

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 instead 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.

### **Change of examiner**

A student who has obtained a failing grade twice in a course or module, has the right to request for a new examiner except for extraordinary reasons.

### **Grades**

The grades for the course are either fail (F) or grades 3-5, where 3 corresponds to pass, 4 corresponds to satisfactory and 5 corresponds to excellent. An overall assessment of both written and practical

## Grades

Four-grade scale, LiU, U, 3, 4, 5

## Course literature

A literature reference list must be set no later than two months before the course begins by the programme committee for the Bachelor's Programme in Experimental and Industrial Biomedicine. There is no compulsory course literature.

## 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.

## Department

Medicinska fakulteten