

# Pharmacology

Programme course

6.0 credits

Farmakologi

8BKG43

Valid from: 2020 Spring semester

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

**Date determined**  
2018-09-04

**Revision date**  
2020-09-11

## Main field of study

Medical Biology

## Course level

First cycle

## Advancement level

G2X

## Course offered for

- Bachelor´s Programme in Experimental and Industrial Biomedicine
- 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*

Having completed the course, the student is expected to be able to:

- Explain how drugs act at a molecular and cellular level (pharmacodynamics)
- Explain how drugs are absorbed, distributed, metabolised and eliminated (pharmacokinetics)
- Explain the mechanisms behind and consequences of tolerance and drug interactions
- Explain the mechanisms, therapeutic effects and side effects of drugs within various groups
- Describe the pharmacological treatment principles for different disease groups

### *Skills and abilities*

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

- Apply laboratory methods to the study of pharmacodynamics and pharmacokinetics
- Compile and analyse results of pharmacological experiments
- Describe pharmacological data orally and in writing

### *Judgement ability and approach*

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

- Critically appraise and evaluate knowledge within the field of pharmacology from an academic, ethical and social perspective.

## Course content

The course is a basic course in pharmacology that is required in order to understand industrial drug development, clinical drug trials and pharmacological research. The course aims to provide a general understanding of the mechanisms, metabolism, interaction and pharmacological effects of drugs. The course elucidates how different drugs are used in the treatment of specific diseases: cardiovascular diseases (e.g. hypertension, heart failure and ischaemic heart disease), coagulation disorders (haemostasis and platelet drugs), neurological diseases, respiratory diseases, inflammatory conditions and cancer.

The course encompasses the field of pharmacology, with links to cell biology, physiology, pathology and biochemistry.

## 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.

Work methods used on this course are lectures, seminars, tutorial groups and laboratory sessions.

## Examination

The form of examination is an individual written examination. In addition, active participation in compulsory course elements is required in order to pass the course. Compulsory course elements include practical and theoretical laboratory sessions, laboratory reports, tutorial groups, written assignments and seminars.

The written examination may be performed an unlimited number of times by those students who have not achieved a passing grade.

The examiner can decide to replace the compulsory element with an equivalent task if there are special reason to do so and if it is possible regarding the character of the compulsory element.

### **Application for examination / written exam**

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

### **Retake of examination**

Point of time for retake examination must normally be announced no later than the time of the regular examination. The extent of the retake examination must be the same as the regular examination.

### **Examination of students with functional disabilities**

If LiU's coordinator for students with functional disabilities has issued a student the right to customized examination at a written hall examination the student has the right to this. If the coordinator instead has given the student a recommendation of customized examination or alternative examination form, the examiner can decide on this if the examiner consider it possible based on the objectives of the course.

### **Change of examiner**

A student who has obtained a failing grade twice for a course or a part of a course is, after request, entitled to be appointed another examiner, unless there are special reasons to the contrary.

### **Grades**

The course is graded with the grades Fail or passing grades 3-5, where 3 corresponds to approved, 4 corresponds to approved with credit and 5 corresponds to approved with distinction. The grade of the individual written examination (F, 3-5) is the basis for the final grade of the course.

## 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