

# Molecular and Medical Pharmacology

Programme course

7.5 credits

Molekylär och medicinsk farmakologi

8MEA08

Valid from: 2016 Autumn semester

**Determined by**

The Board for First and Second Cycle  
Programmes at the Faculty of Health  
Sciences

**Date determined**

2012-12-07

**Revision date**

2014-10-06

## Main field of study

Medical Biology

## Course level

Second cycle

## Advancement level

A1X

## Course offered for

- Master's Programme in Experimental and Medical Biosciences

## Entry requirements

The special eligibility requirement 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

In this course the student will acquire an advanced knowledge of the mechanisms of drug action on a molecular and cellular level to understand the medical effects of drugs. The course comprises in-depth knowledge in pharmacodynamics (how drugs act) and includes recent research within selected fields of pharmacology. The course is elective semester one or three in the Master's Programme in Experimental and Medical Biosciences.

By the end of the course the students will be able to:

Knowledge and understanding

- Understand the mechanisms of action of different drugs on a molecular, cellular and physiological level
- Analyze drug effects on a molecular to medical level
- Analyze advanced models of drug/receptor protein interactions

Competence and skills

- Apply an advanced knowledge in pharmacological sciences in order to design and perform laboratory studies and to critically interpret obtained results

Judgement and approach

- Evaluate and analyze complex pharmacological questions presented in the scientific literature

## Course content

- Current concept of drug/receptor protein interaction
- Mechanisms and medical effects of drugs that interact with G-protein coupled receptors
- Drugs that interact with transmembrane proteins
- Drugs that interfere with intracellular target proteins
- Drugs that affect the neuron and neurotransmission
- Pharmacokinetics
- Recent research within some field of pharmacology; pharmacodynamics and pharmacokinetics

## Teaching and working methods

General: Linköping University Master's Programme in Experimental and Medical Biosciences applies student-centered learning among which Problem Based Learning (PBL) is one pedagogical philosophy and method. To prepare the students for future employment, practical and experimental work in laboratory settings are important parts of the programme in courses as well as in individual projects.

Specific: In this course lectures, tutorial groups, seminars 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: tutorial groups, group assignments- including laboratory work and in-depth studies, and seminars.

### Examination

Individual written examination.

#### Scope of re-examination

The extent of a 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

The planning and implementation of a course must take its starting point in the wording of the course plan. The course evaluation included in each course must therefore take up the question how well the course agrees with the course plan.

The course is carried out in such a way that both men's and women's experience and knowledge is made visible and developed.

If the course is withdrawn, or is subject to major changes, examinations according to this course plan are normally offered on a total of three occasions within one year, one of them in close connection to the first examination.

## Department

Institutionen för medicin och hälsa