



**Karolinska  
Institutet**

Course syllabus for

## **Pharmacology, 15 credits**

Farmakologi, 15 hp

This course syllabus is valid from spring 2013.

Please note that the course syllabus is available in the following versions:

[Autumn2010](#) , [Spring2013](#) , [Spring2014](#) , [Autumn2017](#) , [Autumn2022](#)

Course code	1QA047
Course name	Pharmacology
Credits	15 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Medicine
Level	First cycle, has only upper-secondary level entry requirements
Grading scale	Pass with distinction, Pass, Fail
Department	Department of Physiology and Pharmacology
Decided by	Styrelsen för utbildning
Decision date	2010-12-03
Revised by	Styrelsen för utbildning
Last revision	2013-02-14
Course syllabus valid from	Spring 2013

### **Specific entry requirements**

Biology 2, Physics 2, Chemistry 2, Mathematics 4 (field specific entry requirements A13). Or: Biology B, Physics B, Chemistry B, Mathematics D (field specific entry requirements 13). Or the course Human Physiology, 30 credits.

### **Objectives**

The course aims at providing knowledge of drugs and their effect on the organism. The course intends to provide knowledge to students who not are medics but that can be expected to obtain a large use of this knowledge within other healthcare within the pharmaceutical industry or research.

On completion of the course, the student at a basic level should, be able to account for:

- Principles for the impact of drugs in the organism (absorption, distribution, metabolism and secretion) and to be familiar with basic pharmacokinetic concepts.
- Principles for the effects of drugs at the molecular/cellular level, as well as at the organ level and the integrative level.
- The most important therapeutic effects and side effects and the main modes of action for agents in different pharmaceutical groups.

- Abuse of drugs.
- Mechanisms behind the development of tolerance and dependence.
- Drugs and other substances that are particularly often abused.
- Mechanisms for drug interactions.
- Mechanisms (genetic, age related, disease related etc) for individual variations in drugs' effects and pharmacokinetics.

## Content

The course is divided in three parts.

**General Principles in Pharmacology, 3 hp** General pharmacology with receptor pharmacology and neurotransmission and neuropsychopharmacology. Principles for drug absorption, distribution, metabolism, secretion and pharmacokinetic fundamental concepts. The receptor concept, dose response, receptor-effector coupling. Basic pharmacological points of attack on neurotransmission, anesthetics, muscle relaxants, neuropsychotropic drugs, agents in neurodegenerative diseases and anti-convulsants etc. The teaching is given in the form of blocks within various fields of therapy with lectures, group exercises with problem-solving and laboratory sessions. **Drugs Affecting Major Organs - Their Mode of Actions, 3 hp** The most important therapeutic effects and side effects and the main modes of action for agents in different pharmaceutical groups. Cardiovascular pharmacology (means at congestive heart failure, means at ischemic heart-disease, antihypertensive means etc), means at koagulationsstörning, the pharmacology of the respiratory organs, the pharmacology of the gastrointestinal canal, analgesics, anti-inflammatory means, diuretics, endocrine pharmacology and antibiotics, transplantation - and immunopharmacology and cytostatic agent. **Integration, 9 hp** Integration of theoretical and practical knowledge that has been provided during all parts of the course.

## Teaching methods

The teaching is given in the form of blocks within various fields of therapy with lectures, group exercises with problem-solving and laboratory sessions.

In part 1 and 2 include compulsory laboratory sessions and group work. Opportunity is given to remaining lab exercise and remaining group exercise.

## Examination

Part 1: Oral test. Opportunity is given to re-examination on several occasions. Part 2: Oral test. Opportunity is given to re-examination on several occasions. Part 3: Written examination. An opportunity for a make-up examination is provided on repeated occasions. For admission to part 3 is required that part 1 and 2 are passed, including the compulsory laboratory sessions and the group work.

Parts 1 and 2 have the grading scale Fail/Pass. Part 3 has the scale Fail/Pass/Pass with distinction. The results of part 3 determine the grade for the entire course.

## Transitional provisions

The examination will be provided during a period of two years after a close-down of the course. Examination may take place under a previous reading list during a period of one year after the date of the renewal of the reading list.

## Other directives

Course evaluation will be carried out in accordance with the guidelines established by the Board of Higher Education.

Language of instruction: Swedish.

## Literature and other teaching aids

*Rang, H. P.; Dale, M. Maureen*

### **Rang and Dale's pharmacology Pharmacology**

7. ed. : Edinburgh : Churchill Livingstone, 2011 - 792 p.

ISBN:978-0-7020-3471-8 (pbk.) LIBRIS-ID:12148717

[Library search](#)

### **Läkemedelsboken 2011-2012**

Uppsala : Läkemedelsverket, 2011 - 1269 s.

ISBN:978-91-979605-0-2 LIBRIS-ID:12199360

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