



**Karolinska  
Institutet**

Course syllabus for

## **Pharmacology, 15 credits**

Farmakologi, 15 hp

This course syllabus is valid from autumn 2017.

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	Education committee FyFa
Last revision	2016-12-16
Course syllabus valid from	Autumn 2017

## **Objectives**

### *Knowledge and understanding:*

The student will after the course have a basic knowledge and understanding of the following principles:

- The destiny of a drug in the organism (absorption, distribution, metabolism and secretion) and to be familiar with basic pharmacokinetic concepts.
- The effects of drugs molecular/cellular level as well as organic and integrative level
- 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.
- 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.

### *Skills*

Both orally and by writing be able to describe the fundamental pharmacological principles and how drugs affect the body.

# 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

To support learning during the course, the students are given teacher-led / teacher-supported resources: lectures, human laboratory work and group exercises with problem solving.

Non-teacher-led study involves self-study, reflection and reading.

## Examination

Part 1: Oral test 1 (Fail/Pass).

Part 2: Oral test 2 (Fail/Pass).

Part 3: Written examination. (Fail/Pass/Pass with distinction). For admission to part 3 is required that part 1 and 2 are passed, including the compulsory laboratory sessions and the group work. The results of part 3 determine the grade for the entire course.

One opportunity for a make-up examination is provided after the course. The year after the course 2 make-up examination is provided. A student who have not pass the ordinary written examination have the opportunity to participate at five other occasions of written examinations.

## 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. Teaching and presentations can occur in English.

## Literature and other teaching aids

**Rang & Dale's pharmacology**

*Rang, H. P.; Ritter, James; Flower, R. J.; Dale, M. Maureen; Henderson, Graeme*

Eighth edition. : [Edinburgh?] : Elsevier/Churchill Livingstone, [2016] - 1 online resource

ISBN:9780702054976 LIBRIS-ID:17759688

[Library search](#)

**Läkemedelsboken [Elektronisk resurs].**

Uppsala : Läkemedelsverket, [2013] - 1275 s.

LIBRIS-ID:14878607

URL: [Fritt tillgänglig via Läkemedelsverket](#)

*Fredholm, Bertil B.*

**Basal farmakologi**

1. uppl. : Lund : Studentlitteratur, 2014 - 301 s.

ISBN:9789144050362 LIBRIS-ID:15122334

[Library search](#)