

Pharmacology

Title	Pharmacology
Semester	E2025
Master programme in	Molecular Health Science / Chemical Biology / Mathematical Bioscience
Type of activity	Course
Teaching language	English
Study regulation	Read about the Master Programme and find the Study Regulations at ruc.dk Læs mere om uddannelsen og find din studieordning på ruc.dk

REGISTRATION AND STUDY ADMINISTRATIVE

Sign up for study activities at [stads selvbetjening](#) within the announced registration period, as you can see on the [Studyadministration homepage](#).

When signing up for study activities, please be aware of potential conflicts between study activities or exam dates.

Registration

The planning of activities at Roskilde University is based on the recommended study programs which do not overlap. However, if you choose optional courses and/or study plans that goes beyond the recommended study programs, an overlap of lectures or exam dates may occur depending on which courses you choose.

Number of participants

ECTS 5

Responsible for the activity Louise Torp Dalgaard (ltd@ruc.dk)

Head of study Lotte Jelsbak (ljelsbak@ruc.dk)

Teachers

Study administration INM Registration & Exams (inm-exams@ruc.dk)

Exam code(s) U60180

ACADEMIC CONTENT

Overall objective	<p>This is a lecture-based course covering basic pharmacology and as well as the pharmacology of selected treatment areas. Basic pharmacology is introduced, such as receptor-ligand interactions, pharmacokinetics and dynamics, absorption, distribution, metabolism, secretion (ADME), as well as combination effects and adverse reactions.</p> <p>The course also aims to give an introduction to development, clinical testing and registration of pharmacological compounds.</p> <p>The pharmacology of selected areas of treatment is covered, for example cardiovascular pharmacology, renal pharmacology, chemotherapeutics, anti-inflammatory agents, hormones & hormone antagonists.</p>
	<p>Pharmacology is a lecture based course that has the purpose to introduce students into basal pharmacology and how pharmaceteutics are used to treat the most common diseases and ailments.</p>
Detailed description of content	<p>The course will introduce how pharmaceuticals may act, are taken up, distributed in the body, metabolized in different tissues and how they are excreted.</p> <p>Moreover, the course will teach students how drug candidates are developed and tested in order to be registered and approved for use in humans.</p>
Course material and Reading list	<p>Medical Pharmacology and Therapeutics, newest edition (6th edition), authors: Derek G. Waller, Anthony Sampson, Andrew Hitchings, Elsevier.</p>
Overall plan and expected work effort	<ul style="list-style-type: none"> • Lectures 30 hours • Preparation time 100 hours - this means that students should expect to use at least 6 hours of preparation time for each double-lecture throughout the semester. • Question hour 2 hour • Written exam 3 hour • In total 135 hours

Format

The course includes formative evaluation based on dialogue between the students and the teacher(s).

Evaluation and feedback Students are expected to provide constructive critique, feedback and viewpoints during the course if it is needed for the course to have better quality. Every other year at the end of the course, there will also be an evaluation through a questionnaire in SurveyXact. The Study Board will handle all evaluations along with any comments from the course responsible teacher.

Furthermore, students can, in accordance with RUCs 'feel free to state your views' strategy through their representatives at the study board, send evaluations, comments or insights from the course to the study board during or after the course.

In the first part of the course, focus will be on basic pharmacology; how pharmaceutical drugs act in the organism, how they are taken up, distributed, metabolized and excreted.

Programme The next part of the course has focus on how pharmaceutical drugs are developed, tested and approved for use as medicine.

The last part of the course has focus on introducing specific categories of pharmaceutical drugs that are in current use as medical substances. The course has focus on some of the most important diseases.

Selected lectures may be carried out in the 'flipped class-room format'.

ASSESSMENT

After completing the course, the students will be able to:

- Overall learning outcomes
- describe the mechanisms involved in the organisms' handling of foreign substances at different organizational levels (cellular, tissue and organism levels)
 - explain the interaction of pharmaceuticals and foreign substances with biological membranes, including uptake, mechanism of action and metabolism in the organism as well as various tissue types

- compare and discuss the pharmacological basis for treatment of selected, common diseases and describe actions and side effects of pharmacological agents
- recall and describe how experiments and clinical studies have contributed to current knowledge and understanding of pharmacology and toxicology
- compare the design and analysis of observational studies, clinical testing and experiments in the fields of pharmacology
- interpret and evaluate pharmacological experiments, analyses and data in a biological context
- conduct theoretical reviews of the latest scientific literature within pharmacology
- propose and construct new scientific hypotheses as a starting point for a project related to pharmacology
- communicate the knowledge and understanding gained from the course in a precise and scientific way.

Individual written invigilated exam

The exam must be taken on your own PC. You can only use the internet to access the exam materials and for submission in the Digital Exam. The internet must remain on throughout the exam to ensure the Observer program runs successfully.

Form of examination

The duration of the exam is 3 hours.

Permitted support and preparation materials for the exam: No support or preparation materials are allowed during the exam..

Assessment: 7-point grading scale

Moderation: External examiner

Individual oral exam without time for preparation.

Form of Re-examination

Time allowed for exam including time used for assessment: 20 minutes.

Permitted support and preparation materials: None.

Assessment: 7-point grading scale.
Moderation: External examiner.

Type of
examination
in special
cases

The exam is a 3 hr written invigilated exam. The exam has the form of posing general questions with essay answers.

Assessment criteria:

-Knowledge and understanding of pharmacological drug action, such as how drugs are taken up, metabolized in the organism and in individual tissues, and excreted. This includes describing the mechanisms involved in the organisms' handling of foreign substances at different organizational levels (cellular, tissue and organism levels).

Examination
and
assessment
criteria
(implemented)

- Knowledge about how drugs in general act on receptors as agonists and antagonists. Students should be able to explain the interaction of pharmaceuticals and foreign substances with biological membranes, including uptake, mechanism of action and metabolism in the organism as well as various tissue types
- Knowledge about and understanding of how drug candidates undergo testing in order to obtain approval for use in human subjects. Students should be able to recall and describe how experiments and clinical studies have contributed to current knowledge and understanding of pharmacology and toxicology and how clinical pharmacological studies can be designed.
- Knowledge and understanding of the pharmacological action of common drug categories used for treating common human disease. The student should be able to compare and discuss the pharmacological basis for treatment of selected, common diseases and describe actions and side effects of pharmacological agents.
- Overall students must be able to demonstrate ability to interpret and evaluate pharmacological experiments, analyses and data in a biological context

Regarding the use of generative AI at the exam

In this course, the use of generative artificial intelligence (GAI) is not allowed in the exam.

However, general spell-checking and other language suggestions, such as those known from Word or other word processors, are permitted in all written exams.

Read more about the Roskilde University's framework and guidelines for artificial intelligence [here](#).

Exam code(s) Exam code(s) : U60180

Course days:

Hold: 1

Pharmacology

time 05-09-2025 10:15 til
05-09-2025 12:00
forberedelsesnorm ikke valgt
forberedelsesnorm D-VIP ikke valgt
location 22.2-009 - undervisningslokale (56)
Teacher Lanfranco Pellesi (pellesi@ruc.dk)

Pharmacology

time 10-09-2025 10:15 til
10-09-2025 12:00
location 25.2-005 - teorirum 25.2 (80)
Teacher Lanfranco Pellesi (pellesi@ruc.dk)

Pharmacology

time 17-09-2025 10:15 til
17-09-2025 12:00
location 11.2-047 - gl. natfagsal (65)
Teacher David Møbjerg Kristensen (davidmk@ruc.dk)

Pharmacology

time 24-09-2025 10:15 til
24-09-2025 12:00
location 25.2-005 - teorirum 25.2 (80)
Teacher Louise Torp Dalgaard (ltd@ruc.dk)

Pharmacology

time 01-10-2025 12:15 til
01-10-2025 14:00
forberedelsesnorm ikke valgt
forberedelsesnorm D-VIP ikke valgt
location 25.3-005 - teorirum 25.3 (80)
Teacher David Møbjerg Kristensen (davidmk@ruc.dk)

Pharmacology

time 08-10-2025 10:15 til
08-10-2025 12:00
location 11.2-047 - gl. natfagsal (65)
Teacher David Møbjerg Kristensen (davidmk@ruc.dk)

Pharmacology

time 15-10-2025 10:15 til
15-10-2025 12:00
location 11.2-047 - gl. natfagsal (65)
Teacher Lanfranco Pellesi (pellesi@ruc.dk)

Pharmacology

time 22-10-2025 10:15 til
22-10-2025 12:00
location 11.2-047 - gl. natfagsal (65)
Teacher Lanfranco Pellesi (pellesi@ruc.dk)

Pharmacology

time 28-10-2025 14:15 til
28-10-2025 16:00

location 11.2-047 - gl. natfagsal (65)
Teacher Lanfranco Pellesi (pellesi@ruc.dk)

Pharmacology

time 29-10-2025 10:15 til
29-10-2025 12:00

location 11.2-047 - gl. natfagsal (65)
Teacher Lanfranco Pellesi (pellesi@ruc.dk)

Pharmacology

time 04-11-2025 14:15 til
04-11-2025 16:00

location 11.2-047 - gl. natfagsal (65)
Teacher Lanfranco Pellesi (pellesi@ruc.dk)

Pharmacology

time 05-11-2025 10:15 til
05-11-2025 12:00

location 11.2-047 - gl. natfagsal (65)
Teacher Lanfranco Pellesi (pellesi@ruc.dk)

Pharmacology

time 11-11-2025 14:15 til
11-11-2025 16:00

location 11.2-047 - gl. natfagsal (65)
Teacher Lanfranco Pellesi (pellesi@ruc.dk)

Pharmacology

time 12-11-2025 10:15 til
12-11-2025 12:00

location 11.2-047 - gl. natfagsal (65)
Teacher Louise Torp Dalgaard (ltd@ruc.dk)

Pharmacology

time 18-11-2025 14:15 til
18-11-2025 16:00

location 11.2-047 - gl. natfagsal (65)

Teacher Lanfranco Pellesi (pellesi@ruc.dk)

Pharmacology

time 19-11-2025 10:15 til
19-11-2025 12:00

location 11.2-047 - gl. natfagsal (65)

Teacher Louise Torp Dalgaard (ltd@ruc.dk)

Pharmacology

time 07-01-2026 09:00 til
07-01-2026 12:00

forberedelsesnorm ikke valgt

forberedelsesnorm D-VIP ikke valgt

location 25.3-005 - teorirum 25.3 (80) / 25.1-035 - teorirum 25.1 (130)

Pharmacology

time 27-02-2026 10:15 til
27-02-2026 16:00

forberedelsesnorm ikke valgt

forberedelsesnorm D-VIP ikke valgt