

## Pharmacology

Title	Pharmacology
Semester	E2023
Master programme in	Medicinal biology / Chemical Biology / Mathematical Bioscience / Molecular Health Science
Type of activity	Course
Teaching language	English
Study regulation	Read about the Master Programme and find the Study Regulations at <a href="https://ruc.dk">ruc.dk</a>  Læs mere om uddannelsen og find din studieordning på <a href="https://ruc.dk">ruc.dk</a>

### REGISTRATION AND STUDY ADMINISTRATIVE

Registration	<p>Sign up for study activities at <a href="#">stads selvbetjening</a> within the announced registration period, as you can see on the <a href="#">Studyadministration homepage</a>.</p> <p>When signing up for study activities, please be aware of potential conflicts between study activities or exam dates.</p> <p>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.</p>
Number of participants	
ECTS	5
Responsible for the activity	Louise Torp Dalgaard ( <a href="mailto:ltd@ruc.dk">ltd@ruc.dk</a> )
Head of study	Lotte Jelsbak ( <a href="mailto:ljelsbak@ruc.dk">ljelsbak@ruc.dk</a> )
Teachers	
Study administration	INM Registration & Exams ( <a href="mailto:inm-exams@ruc.dk">inm-exams@ruc.dk</a> )
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 &amp; hormone antagonists.</p>
Detailed description of content	<p>Pharmacology is a lecture based course that has the purpose to introduce students into basal pharmacology and how pharmaceuticals are used to treat the most common diseases and ailments.</p> <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"> <li>• Lectures 30 hours</li> <li>• Preparation time 100 hours - this means that students should expect to use <b>at least 6</b> hours of preparation time for each double-lecture throughout the semester.</li> <li>• Question hour 2 hour</li> <li>• Written exam 3 hour</li> <li>• <b>In total 135 hours</b></li> </ul>
Format	
Evaluation and feedback	<p>The course includes formative evaluation based on dialogue between the students and the teacher(s).</p> <p>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.</p> <p>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.</p>
Programme	<p>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.</p>

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.

## ASSESSMENT

Overall  
learning  
outcomes

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

- 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.

Form of  
examination

Individual written invigilated exam.

The duration of the exam is 3 hours.

Permitted support and preparation materials for the exam: Dictionaries and non-programmable pocket calculator.

Assessment: 7-point grading scale.

Moderation: External examiner.

Form of Re-  
examination

Individual oral exam without time for preparation.

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

Examination  
and  
assessment  
criteria

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).

- 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

Exam code(s)    Exam code(s) : U60180

Course days:

Hold: 1

**Pharmacology (MHS) - note: room change due to semester start**

time        06-09-2023 10:15 til  
              06-09-2023 12:00

location    15.0-003 - auditorie 15 (68)

Teacher    Louise Torp Dalgaard ( ltd@ruc.dk )

## Pharmacology (MHS)

time 13-09-2023 10:15 til  
13-09-2023 12:00

location 11.2-047 - gl. natfagsal (65)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pharmacology (MHS)

time 20-09-2023 10:15 til  
20-09-2023 12:00

location 11.2-047 - gl. natfagsal (65)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pharmacology (MHS) - note: room change due to NATDAG

time 27-09-2023 10:15 til  
27-09-2023 12:00

location 06.1-032 - teorirum (65)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pharmacology (MHS)

time 04-10-2023 10:15 til  
04-10-2023 12:00

location 11.2-047 - gl. natfagsal (65)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pharmacology (MHS) - note: change in time and location

time 09-10-2023 10:15 til  
09-10-2023 12:00

forberedelsesnorm ikke valgt

forberedelsesnorm D-VIP ikke valgt

location 05.1-032 - teorirum 05.1 (65)

Teacher Lanfranco Pellesi ( pellesi@ruc.dk )

## Pharmacology (MHS)

time 18-10-2023 10:15 til  
18-10-2023 12:00

location 11.2-047 - gl. natfagsal (65)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pharmacology (MHS)

time 25-10-2023 10:15 til  
25-10-2023 12:00

location 11.2-047 - gl. natfagsal (65)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pharmacology (MHS)

time 01-11-2023 10:15 til  
01-11-2023 12:00

location 11.2-047 - gl. natfagsal (65)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pharmacology (MHS)

time 08-11-2023 10:15 til  
08-11-2023 12:00

location 11.2-047 - gl. natfagsal (65)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pharmacology (MHS)

time 15-11-2023 10:15 til  
15-11-2023 12:00

location 11.2-047 - gl. natfagsal (65)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pharmacology (MHS)

time 22-11-2023 10:15 til  
22-11-2023 12:00

location 11.2-047 - gl. natfagsal (65)

Teacher Louise Torp Dalgaard (ltd@ruc.dk)

## Pharmacology (MHS)

time 29-11-2023 10:15 til  
29-11-2023 12:00

location 11.2-047 - gl. natfagsal (65)

Teacher Louise Torp Dalgaard (ltd@ruc.dk)

## Pharmacology (MHS)

time 04-12-2023 10:15 til  
04-12-2023 12:00

forberedelsesnorm ikke valgt

forberedelsesnorm D-VIP ikke valgt

location 11.2-047 - gl. natfagsal (65)

Teacher Louise Torp Dalgaard (ltd@ruc.dk)

## Pharmacology (MHS) - Note: Bulding 27

time 13-12-2023 10:15 til  
13-12-2023 12:00

forberedelsesnorm ikke valgt

forberedelsesnorm D-VIP ikke valgt

location 27.1-089 - teorirum 27 (66)

Teacher Louise Torp Dalgaard (ltd@ruc.dk)

## Pharmacology (MHS) - Note: building 27

time 20-12-2023 10:15 til  
20-12-2023 12:00

forberedelsesnorm ikke valgt

forberedelsesnorm D-VIP	ikke valgt
location	27.1-089 - teorirum 27 (66)
Teacher	Louise Torp Dalgaard ( ltd@ruc.dk )

## Pharmacology - Exam (MHS)

time	03-01-2024 10:00 til 03-01-2024 13:00
forberedelsesnorm	ikke valgt
forberedelsesnorm D-VIP	ikke valgt
location	45.3-051 - teorirum 45.3 (90)

## Pharmacology - Reexam (MHS)

time	27-02-2024 08:15 til 27-02-2024 12:00
forberedelsesnorm	ikke valgt
forberedelsesnorm D-VIP	ikke valgt