

## Pathophysiology and Immunology

Title	Pathophysiology and Immunology
Semester	E2023
Master programme in	Medicinal biology / 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	10
Responsible for the activity	Jesper Troelsen ( <a href="mailto:troelsen@ruc.dk">troelsen@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)	U60181

### ACADEMIC CONTENT

Overall objective	<p>This is a lecture-based course covering Pathophysiology and Immunology</p> <p>In the pathophysiology part the students have to learn and deduce the relevant knowledge in the physiology of various human diseases, including blood and vascular diseases, cardiovascular diseases, respiratory diseases, diseases of the stomach, liver and pancreas, kidney diseases and the salt and water imbalance, endocrine gland diseases, diseases of musculoskeletal diseases, in the nervous system as well as pain and trauma.</p> <p>The immunology part: The relevant knowledge in the structure of the immune system, antibody production, the MHC complex, T cell functions, abnormal immune responses, immunological techniques, and their uses will be educated and deduced.</p>
Detailed description of content	<p><b>Themes in the pathophysiology part:</b></p> <p>Various human diseases:</p> <ul style="list-style-type: none"> <li>• Blood and vascular diseases,</li> <li>• Cardiovascular diseases,</li> <li>• Respiratory diseases</li> <li>• Diseases of the stomach, liver and pancreas,</li> <li>• Kidney diseases and the salt and water imbalance</li> <li>• Endocrine gland diseases</li> <li>• Diseases of musculoskeletal diseases, in the nervous system as well as pain and trauma.</li> </ul> <p>Clinical cases will for the different diseases will presented and case-based teaching on the diseases will be included.</p> <p><b>Themes in the immunology part:</b></p> <ul style="list-style-type: none"> <li>• structures of the immune system</li> <li>• antibody production</li> <li>• the MHC complex</li> <li>• T cell functions</li> <li>• abnormal immune responses</li> <li>• immunological techniques</li> </ul>
Course material and Reading list	<ul style="list-style-type: none"> <li>• Porth's Essentials of Pathophysiology 5th Edition by Tommie L Norris, and Peter Wood: Understanding immunology (I), 3.ed,</li> <li>• power points and other material on Moodle.</li> </ul>
Overall plan and expected work effort	<p>This is a lecture-based course covering Pathophysiology and Immunology</p> <p>2/3 of the lectures will taught by medical doctors which are specialists in the topics. Most of the immunology lectures is given by INM teachers.</p> <p>Clinical cases will be used to train the course participants in clinical deductions and diagnosis.</p> <ul style="list-style-type: none"> <li>• Exam 5 hrs</li> <li>• Lectures 58 hrs</li> <li>• Seminars based on clinical cases 4 hrs</li> <li>• Preparation 203 hrs</li> </ul> <p>- Total 270 hrs</p>
Format	

Evaluation  
and feedback

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

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

Programme

Programme for the course.

**Lectures in immunology:**

- Innate and adaptive immune system
- B and T lymphocytes, MHC
- Lymphocyte development + lymphatic system
- Cellular immunity
- Antibody production
- Tolerance / autoimmunity
- Allergy, AIDS, Transplantation
- Advanced flow cytometry and cell typing
- Immunological methods

**Lectures in pathophysiology**

- Diseases of the stomach, liver and pancreas
- Blood diseases
- Medical cancer treatment
- Cardiovascular Diseases
- Kidney diseases. Salt and water balance
- Nutrition
- Diseases of the nervous system
- Endocrine diseases
- Diseases of muscles and joints
- Respiratory diseases\*
- Patophys. Reproductive diseases
- Seminars in clinical cases.

ASSESSMENT

Overall  
learning  
outcomes

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

- identify and describe pathophysiological conditions in the organism as well as in various tissues
- identify and describe the structure and function of the immune system
- discuss how experiments have contributed to the current understanding of pathophysiology and immunology
- describe the development of various diseases
- conduct a theoretical review of the latest scientific literature in the field of pathophysiology and immunology
- formulate new scientific hypotheses as a starting point for a thesis project in pathophysiology / immunology

Form of examination	<p>Individual written invigilated exam.</p> <p>The duration of the exam is 5 hours.</p> <p>Permitted support and preparation materials for the exam: None.</p> <p>Assessment: 7-point grading scale. Moderation: Internal co-assessor.</p>
Form of Re-examination	<p>Individual oral exam with time for preparation.</p> <p>Time for preparation including time to pick a question by drawing lots: 45 minutes. Time allowed for exam including time used for assessment: 45 minutes.</p> <p>Permitted support and preparation materials: None.</p> <p>Assessment: 7-point grading scale. Moderation: Internal co-assessor.</p>
Type of examination in special cases	
Examination and assessment criteria	<p>Regular exam:</p> <p>5hrs written exam in two parts: a immunology part and pathology part. Immunology part is handed in after 1.5 hrs of the exam.</p> <p>The pathophysiology part weighs 70 % of the exam, immunology part 30%.</p> <p>Reexam is oral with preparation time. The examination is based on two questions in pathophysiology and one in immunology.</p> <p>The student starts the exam with short presentations covering the questions, after which the examination takes place as a dialogue. The entire syllabus can be used for the examination.</p> <p>It will be assessed to which degree the student demonstrates to ability to:</p> <ul style="list-style-type: none"> <li>• identify and describe pathophysiological conditions in the human organism as well as in various tissues.</li> <li>• identify and describe the structure and function of the immune system</li> <li>• discuss how experiments have contributed to the current understanding of pathophysiology and immunology</li> <li>• describe the development of various diseases</li> <li>• explain how diseases are diagnosed and can be treated.</li> <li>• access basis clinical data from patient cases to identify diseases and treatment options.</li> </ul> <p>The assessment of the oral re-exam is based on the student's ability to meet the criteria mentioned above and their ability to clearly present and communicate the given topics</p>
Exam code(s)	Exam code(s) : U60181

Course days:

Hold: 1

## Pathophysiology and Immunology (MHS)

time 06-09-2023 08:15 til  
06-09-2023 10:00

location 11.1-047 - studiesal (40)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pathophysiology and Immunology (MHS)

time 08-09-2023 12:15 til  
08-09-2023 14:00

location 11.1-047 - studiesal (40)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pathophysiology and Immunology (MHS)

time 11-09-2023 08:15 til  
11-09-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 13-09-2023 08:15 til  
13-09-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 18-09-2023 08:15 til  
18-09-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 20-09-2023 08:15 til  
20-09-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 25-09-2023 08:15 til  
25-09-2023 10:00

location 11.1-047 - studiesal (40)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pathophysiology and Immunology (MHS) - note: room change due to NATDAG

time 27-09-2023 08:15 til  
27-09-2023 10:00

location 06.1-032 - teorirum (65)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pathophysiology and Immunology (MHS)

time 02-10-2023 08:15 til  
02-10-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 04-10-2023 08:15 til  
04-10-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 09-10-2023 08:15 til  
09-10-2023 10:00

location 11.1-047 - studiesal (40)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pathophysiology and Immunology (MHS)

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

location 11.1-047 - studiesal (40)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pathophysiology and Immunology (MHS)

time 16-10-2023 08:15 til  
16-10-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 18-10-2023 08:15 til  
18-10-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 23-10-2023 08:15 til  
23-10-2023 10:00

location 11.1-047 - studiesal (40)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pathophysiology and Immunology (MHS)

time 25-10-2023 08:15 til  
25-10-2023 10:00

location 11.1-047 - studiesal (40)

Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## Pathophysiology and Immunology (MHS)

time 30-10-2023 08:15 til  
30-10-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 01-11-2023 08:15 til  
01-11-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 06-11-2023 08:15 til  
06-11-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

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

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 13-11-2023 08:15 til  
13-11-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

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

location 11.1-047 - studiesal (40)



## Pathophysiology and Immunology (MHS)

time 20-11-2023 08:15 til  
20-11-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 22-11-2023 08:15 til  
22-11-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 27-11-2023 08:15 til  
27-11-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 29-11-2023 08:15 til  
29-11-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 04-12-2023 08:15 til  
04-12-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

time 06-12-2023 08:15 til  
06-12-2023 10:00

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS)

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

location 11.1-047 - studiesal (40)

## Pathophysiology and Immunology (MHS) - Note: building 27

time 13-12-2023 08:15 til  
13-12-2023 10:00

forberedelsesnorm ikke valgt

forberedelsesnorm D-VIP ikke valgt

location 27.1-089 - teorirum 27 (66)

## Pathophysiology and Immunology (MHS) - Note: building 27

time 18-12-2023 08:15 til  
18-12-2023 10:00

forberedelsesnorm ikke valgt

forberedelsesnorm D-VIP ikke valgt

location 27.1-089 - teorirum 27 (66)

## Pathophysiology and Immunology (MHS) - Note: building 27

time 20-12-2023 08:15 til  
20-12-2023 10:00

forberedelsesnorm ikke valgt

forberedelsesnorm D-VIP ikke valgt

location 27.1-089 - teorirum 27 (66)

Teacher Louise Torp Dalgaard (ltd@ruc.dk)

## Pathophysiology and Immunology - Exam (MHS)

time 12-01-2024 09:00 til  
12-01-2024 14:00

forberedelsesnorm ikke valgt

forberedelsesnorm D-VIP ikke valgt

location 45.3-051 - teorirum 45.3 (90)

## Pathophysiology and Immunology - Reexam (MHS)

time 29-02-2024 12:15 til  
29-02-2024 16:00

forberedelsesnorm ikke valgt

forberedelsesnorm D-VIP ikke valgt