

## General Molecular and Medical Biology

Title	General Molecular and Medical Biology
Semester	E2022
Master programme in	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="http://ruc.dk">ruc.dk</a> Læs mere om uddannelsen og find din studieordning på <a href="http://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	Fatima AlZahraa Alatraktchi ( <a href="mailto:alzahraa@ruc.dk">alzahraa@ruc.dk</a> )
Head of study	Lotte Jelsbak ( <a href="mailto:ljelsbak@ruc.dk">ljelsbak@ruc.dk</a> )
Teachers	
Study administration	INM Studieadministration ( <a href="mailto:inm-studieadministration@ruc.dk">inm-studieadministration@ruc.dk</a> )
Exam code(s)	U60173

### ACADEMIC CONTENT

Overall objective	The aim of the course is to prepare students, without basic knowledge in several of these topics: molecular biology, cell biology, microbiology,
-------------------	--

	<p>genetics, biochemistry, human physiology and anatomy, to enable them following Masters' courses offered by Molecular Health Science and other related Masters' programmes. This is course containing specific elements of cell biology, molecular biology, microbiology, biochemistry and physiology, knowledge of which is required for further studies.</p>
<p>Detailed description of content</p>	<p>The aim of the course is to prepare students to be able to follow Masters' courses in biology in MatBio and ChemBio.</p> <p><b>Themes that will be covered</b></p> <ul style="list-style-type: none"> <li>● Cardiovascular &amp; renal physiology</li> <li>● Absorption and digestion of nutrients &amp; intermediary metabolism</li> <li>● Inflammation &amp; the immune system</li> <li>● General biochemistry</li> <li>● Basic microbiology</li> <li>● Tour of the cell &amp; Macromolecules</li> <li>● The central dogma</li> <li>● Methods in molecular biology</li> </ul>
<p>Course material and Reading list</p>	<p>The exact curriculum will be announced on the Moodle site for the course</p>
<p>Overall plan and expected work effort</p>	<p>Lectures will be given as recorded videos (Flipped class room) and following discussion of relevant topics from the curriculum (including problem solving).</p> <p>5 ECTS corresponds to 135 hours:</p> <ul style="list-style-type: none"> <li>● Lectures 16 h</li> <li>● Discussion and problem solving 16 h</li> <li>● Preparation lectures and problem solving 72 h</li> <li>● Exam 1 h</li> <li>● Preparation for exam 30 h</li> </ul> <p>- in total 135 h</p>
<p>Format</p>	
<p>Evaluation and feedback</p>	<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>
<p>Programme</p>	<p>The exact course schedule will be announced on the Moodle site for the course.</p>

**ASSESSMENT**

Overall learning outcomes

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

- describe and discuss the macromolecules and organisation of the eukaryotic cells
- identify and interpret different types of signaling between cells in an organism
- describe and discuss the principles of the central dogma (transcription-translation) and cell division (DNA-repair, mutations, tumors, cancer)
- interpret data of common methods in molecular biology (western blot, (q)PCR, sequencing, microscopy)
- describe and explain basic biochemistry (simple intracellular metabolism, i.e. glycolysis, tricarboxylic acid cycle, oxphos) and enzyme kinetics and reaction kinetics in general
- describe and discuss the biology of virus and bacteria, including particle or cellular structures
- identify and interpret the principles of population growth in relation to microbiology or environmental biology
- describe and discuss basic physiology, especially cardiovascular and renal physiology, as well as absorption and digestion of nutrients & intermediary metabolism
- describe and explain inflammation & the immune system.

Form of examination

Individual oral exam without time for preparation.

Time allowed for exam including time used for assessment: 15 minutes.

Permitted support and preparation materials: None.

Assessment: Pass/Fail.

Moderation: Internal co-assessor.

Form of Re-examination

Same form as the ordinary exam

Type of examination in special cases

Examination and assessment criteria

The oral exam begins with a 5-minute presentation from the student based on a given question drawn by lottery.

During the oral examination the student should be able to

- Describe and discuss the macromolecules and organization of the eukaryotic cells.
- Identify and interpret different types of signaling between cells in an organism.
- Describe and discuss the principles of the central dogma (transcription-translation) and cell division (DNA-repair, mutations, tumors, cancer)
- Interpret data of common methods in molecular biology (western blot, (q)PCR, sequencing, microscopy).
- Describe and explain basic biochemistry (simple intracellular metabolism, i.e. glycolysis, tricarboxylic acid cycle, oxphos) and enzyme kinetics and reaction kinetics in general.
- Describe and discuss the biology of virus and bacteria, including particle or cellular structures.
- Identify and interpret the principles of population growth in relation to microbiology or environmental biology.

- Describe and discuss basic physiology, especially cardiovascular and renal physiology, as well as absorption and digestion of nutrients & intermediary metabolism.
- Describe and explain inflammation & the immune system

The assessment of the oral exam is based on the student's ability to meet the criteria mentioned above and their ability to

- clearly present and communicate the scientific content of the course
- engage in a scientific dialogue and discussion with the assessors

Exam code(s) Exam code(s) : U60173

Course days:

Hold: 1

## General Molecular and Medical Biology (MHS)

time 05-09-2022 12:15 til  
05-09-2022 14:00

location 28b.0-05 - lille teorirum (20)

Teacher Pratik Shah ( shah@ruc.dk )

## General Molecular and Medical Biology (MHS)

time 08-09-2022 08:15 til  
08-09-2022 10:00

location 28b.0-05 - lille teorirum (20)

Teacher Pia Nyeng ( pnyeng@ruc.dk )

## General Molecular and Medical Biology (MHS)

time 09-09-2022 14:15 til  
09-09-2022 16:00

location 28b.0-05 - lille teorirum (20)

## General Molecular and Medical Biology (MHS)

time 12-09-2022 12:15 til  
12-09-2022 14:00

location 28b.0-05 - lille teorirum (20)

Teacher Lotte Jelsbak ( ljelsbak@ruc.dk )

## General Molecular and Medical Biology (MHS)

time 15-09-2022 08:15 til  
15-09-2022 10:00

location 28b.0-05 - lille teorirum (20)

Teacher Ole Vang ( ov@ruc.dk )

## General Molecular and Medical Biology (MHS)

time 16-09-2022 14:15 til  
16-09-2022 16:00

location 28b.0-05 - lille teorirum (20)

## General Molecular and Medical Biology (MHS)

time 19-09-2022 12:15 til  
19-09-2022 14:00

location 28b.0-05 - lille teorirum (20)

Teacher Fatima AlZahraa Alatraktchi ( alzahraa@ruc.dk )

## General Molecular and Medical Biology (MHS)

time 22-09-2022 08:15 til  
22-09-2022 10:00

location 28b.0-05 - lille teorirum (20)

Teacher Karen Angeliki Krogfelt ( karenak@ruc.dk )

## General Molecular and Medical Biology (MHS)

time 23-09-2022 14:15 til  
23-09-2022 16:00

forberedelsesnorm ikke valgt  
forberedelsesnorm D-VIP ikke valgt  
location 28b.0-05 - lille teorirum (20)

## General Molecular and Medical Biology (MHS)

time 26-09-2022 12:15 til  
26-09-2022 14:00  
location 28b.0-05 - lille teorirum (20)  
Teacher Hans Ramløv ( hr@ruc.dk )

## General Molecular and Medical Biology (MHS)

time 29-09-2022 08:15 til  
29-09-2022 10:00  
location 28b.0-05 - lille teorirum (20)  
Teacher Jesper Troelsen ( troelsen@ruc.dk )

## General Molecular and Medical Biology (MHS)

time 30-09-2022 14:15 til  
30-09-2022 16:00  
location 28b.0-05 - lille teorirum (20)

## General Molecular and Medical Biology (MHS)

time 03-10-2022 12:15 til  
03-10-2022 14:00  
location 28b.0-05 - lille teorirum (20)  
Teacher Louise Torp Dalgaard ( ltd@ruc.dk )

## General Molecular and Medical Biology (MHS)

time 06-10-2022 08:15 til  
06-10-2022 10:00  
location 28b.0-05 - lille teorirum (20)  
Teacher Hans Ramløv ( hr@ruc.dk )

## General Molecular and Medical Biology (MHS)

time 07-10-2022 14:15 til  
07-10-2022 16:00

location 28b.0-05 - lille teorirum (20)

## General Molecular and Medical Biology - Exam (MHS)

time 28-10-2022 12:15 til  
28-10-2022 16:00

forberedelsesnorm ikke valgt

forberedelsesnorm D-VIP ikke valgt

Teacher Ole Vang ( ov@ruc.dk )

## General Molecular and Medical Biology - Reexam (MHS)

time 02-12-2022 12:15 til  
02-12-2022 16:00

forberedelsesnorm ikke valgt

forberedelsesnorm D-VIP ikke valgt

Teacher Ole Vang ( ov@ruc.dk )