Medical Systems Physiology

Medicinsk systemfysiologi
6.0 credits

Programme course

8BKG46

Valid from: 2022 Spring semester

Determined by	**Main field of study**	
Chairman of The Board for First and Second Cycle Programmes	Medical Biology	
Date determined	**Course level**	**Progressive specialisation**
2018-09-04	First cycle	G2X
Revised by	**Disciplinary domain**	
	Medicine	
Revision date	**Subject group**	
2020-09-11; 2021-05-03	Medical Biology	
Offered first time	**Offered for the last time**	
Spring semester 2020		
Department	**Replaced by**	
Medicinska fakulteten		

Course offered for

- Experimental and Industrial Biomedicine
- Bachelor´s Programme in Experimental and Industrial Biomedicine

Entry requirements

General entry requirements for undergraduate studies
and
English corresponding to the level of English in Swedish upper secondary education (English 6)
and
Chemistry, Mathematics and Biology corresponding to the level in Swedish upper secondary education (Chemistry 2, Mathematic 4 and Biology 2)

Exemption from Swedish 3

Intended learning outcomes

Knowledge and understanding

On completion of the course, the student shall be able to:

- Demonstrate an advanced understanding of the structure, physiology and regulation of the major organ systems of the body, such as the circulatory system, kidneys, respiratory system, digestive tract and musculoskeletal system.
- Explain how organ systems interact in order to control the basic functions of the body.
- Explain how the balance of the body is maintained and regulated with regard to homoeostasis
- Demonstrate an advanced understanding of the physiology and specialisation of different cell types in different types of tissue and describe how the cell composition affects organ function
- Describe fundamental mechanisms of tissue and organ repair in conjunction with an injury or disease.

Skills and abilities

On completion of the course, the student shall be able to:

- Apply advanced laboratory methodology pertaining to physiological and biochemical measurement methods used in molecular biology
- Identify, use and interpret methodology and results in order to determine physiological function
- Independently collect, delimit and critically process scientific material from an academic, ethical and social perspective.
- Present scientific information orally and in writing

Judgement ability and approach

On completion of the course, the student shall be able to:

- Critically appraise and evaluate knowledge within the field of medical physiology from an academic, ethical and social perspective.
- Critically read, appraise and give criticism of scientific literature and biomedical papers
- Assess how environmental factors affect the organ systems of the body

Course content

During the course, the student will study human physiology from a medical perspective. Knowledge of the organisation and function of the human body is developed further from the course Medical Physiology, maintaining the focus on organ systems and their interaction. The term 'homoeostasis' is used to describe the normal functioning of the body and how abnormalities can result in disease. During the course, the student will study basic biomedical methodology, with a focus on illustrating physiological processes. The course provides greater knowledge of human physiology and system physiology, and prepares the student for further studies in neurobiology.

The course covers the fields physiology, cell biology, molecular biology, anatomy and histology, which are integrated with biomedical laboratory technology, biomedical ethics and a scientific approach.

Teaching and working methods

At the Faculty of Medicine and Health Sciences student centred and problem based learning make up the foundation of the teaching. The student takes responsibility for, studies and researches current content of the courses and study programme. The methods of the course work challenge the students to independently formulate questions for learning, to seek knowledge and in dialogue with others judge and evaluate achieved knowledge. Students in the Bachelor's programme in Experimental and Industrial Biomedicine work together in groups based on reality based and course related biomedical issues to apply their knowledges, develop their own learning, contribute to the fellow students' learning and to practice cooperation. Throughout the study programme theory is integrated with practical modules. The course methods and integration modules stimulates and support the student's ability to apply their knowledge and professional competence.

Work methods used in this course are laboratory sessions, lectures, seminars and tutorial groups.

Examination

The form of examination is an individual written examination and an individual written report. In addition, active participation in compulsory course elements is required in order to pass the course. Compulsory course elements include seminars, tutorial groups, reports and written assignments.

Grades

The course is graded with the grades Fail (U) or passing grades 3-5, where 3 corresponds to approved, 4 corresponds to approved with credit and 5 corresponds to approved with distinction. An aggregation of the grades from the individual written exam and the individual written report forms the basis of the final grade of the course.

If special circumstances prevail, and if it is possible with consideration of the nature of the compulsory component, the examiner may decide to replace the compulsory component with another equivalent component.

Application for examination

Instructions on how to apply for examinations are given prior to the beginning of each course.

Re-examination

The date for re-examination should normally be announced by the date of the regular examination at latest; in which case the scope must be the same as at the regular examination.

Examination for students with disabilities

If the LiU coordinator for students with disabilities has granted a student the right to an adapted examination for a written examination in an examination hall, the student has the right to it.

If the coordinator has recommended for the student an adapted examination or alternative form of examination, the examiner may grant this if the examiner assesses that it is possible, based on consideration of the course objectives.

An examiner may also decide that an adapted examination or alternative form of examination if the examiner assessed that special circumstances prevail, and the examiner assesses that it is possible while maintaining the objectives of the course.

Nomination of another examiner

A student who has taken two examinations in a course or a part of a course without obtaining a pass grade is entitled to the nomination of another examiner, unless there are special reasons to the contrary.

Grades

Four-grade scale, LiU, U, 3, 4, 5

Course literature

A literature reference list must be set no later than two months before the course begins by the programme committee for the Bachelor's Programme in Experimental and Industrial Biomedicine. There is no compulsory course literature.

Other information

Planning and implementation of the course is to be based on the wordings in the course syllabus. A course evaluation is compulsory for each course and should include how the course is in agreement with the course syllabus. The course coordinator will analyse the course evaluation and propose appropriate development of the course. The analysis and proposal will be returned to the students, the Director of Studies, and as needed to the Education Board, if related to general development and improvement.

The course is carried out in such a way that knowledge of gender, gender identity/expression, ethnicity, religion or other belief system, disability, sexual orientation and age is addressed, highlighted and communicated as part of the programme.

If the course is cancelled or undergoes major changes, examination is normally offered under this course syllabus, at a total of three occasions, within/in connection to the two following semesters, of which one in close proximity to the first examination.