Medical Cell Biology

Medicinsk cellbiologi
6.0 credits

Programme course

8BKG12

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**
2017-08-22	First cycle	G1X
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**	
Autumn semester 2018		
Department	**Replaced by**	
Institutionen för biomedicinska och kliniska vetenskaper		

Course offered for

- 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:

- Describe fundamental characteristics of the eukaryotic cell and the structures, properties and functions of biomolecules in cell systems
- Explain how basic physical and biochemical processes regulate cell function, growth and life cycle
- Describe the structure and fundamental functions of human tissues and organs
- Explain basic biomedical laboratory techniques

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

- Perform stoichiometric calculations and apply this in laboratory work
- Do risk assessment regarding laboratory work
- Use cell culture techniques

Judgement ability and approach
After completion of the course, the student shall be able to:

- Apply basics in problem based learning
- Demonstrate a critical approach to seek relevant information and to identify knowledge regarding cell structure and function

Course content

The course involves the study of elemental human medical cell biology that connects to physiology and medical applications, and thereby is an introduction to the programme. Foremost, the course comprise studies about cell structure and function including membranes, organelles and important biomolecules such as nucleic acids, proteins, lipids and carbohydrates. Moreover, the structure of tissues and organs in the body is introduced together with basic biomedical methodology, with special focus on cell culturing. The aim is to give a fundamental understanding of human cell biology and physiology, in a medical perspective.

The course covers cell biology, molecular biology, biochemistry and medical physiology that is integrated with histology, biomedical laboratory methods, biomedical ethics and 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.

The work methods in this course are tutorial groups, lectures, seminars and laboratory exercises.

Examination

The forms of examination are one individual written and one individual practical exam. In addition, active participation in compulsory components is required to pass the course. Compulsory elements include group work, seminars, laboratory sessions, reports and assignments.

Resource-demanding examinations, in this syllabus the individual practical examination, are limited to five attempts. The written examination may be performed an unlimited number of times by those students who have not achieved

a passing grade.

Grades

The grades for the course are either fail (F) or grades 3-5, where 3 corresponds to pass, 4 corresponds to satisfactory and 5 corresponds to excellent. The grade for the individual written exam (F, 3-5) forms the basis for 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 conducted in such a way that there are equal opportunities with regard to sex, transgender identity or expression, ethnicity, religion or other belief, disability, sexual orientation and age.

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.

If special circumstances prevail, the vice-chancellor may in a special decision specify the preconditions for temporary deviations from this course syllabus, and delegate the right to take such decisions.