Pathology and Disease Models

Programme course

6.0 credits

Patologi och sjukdomsmodeller

8BKG68

Valid from: 2021 Spring semester

Determined by
Chairman of The Board for First and Second Cycle Programmes

Date determined
2019-09-12

Revision date
2020-09-11

Main field of study
Medical Biology

Course level
First cycle

Advancement level
G2X

Course offered for
- Bachelor´s Programme in Experimental and Industrial Biomedicine

Entry requirements
To enter the course requires at least 90 credits from semester 1-4 in the Bachelor's Programme in Experimental and Industrial Biomedicine.

Intended learning outcomes

Knowledge and understanding

Having completed the course, the student is expected to be able to:

- Explain, at an in-depth level, cell death and cellular stress, and how these mechanisms can contribute to pathological conditions
- Relate central molecular and cellular pathophysiological mechanisms to different disease groups, including neoplasi and cardiovascular diseases
- Describe how genetic and environmental factors can contribute to the onset of illness
- Describe how different types of model systems and methods can be used to give insight into disease mechanisms
- Describe diagnostic methods and basic principles for treatment of diseases
- Explain how disturbances in organogenesis can lead to disease

Skills and abilities

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

- Apply biomedical methods in studies of disease progression
- Independently collect, define and critically review scientific literature in pathology from a scientific, ethical and societal perspective
- Identify disease mechanisms and suggest strategies to study them and how to use them as targets for treatment
- Convey informative and arguing scientific oral and written presentations

Judgement ability and approach

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

- Reflect on ethical, practical and scientific issues concerning the use of different types of disease models in biomedical research
- Critically analyze and appraise knowledge within molecular pathology from a scientific, societal and ethical perspective

Course content

The course deals with pathology and pathophysiological mechanisms from a molecular and cellular perspective. The course also aims to provide knowledge about how different model systems and biomedical methods can be used to study disease mechanisms. Within the framework of the course different diseases are used as examples to give an in-depth knowledge and insights how disturbed functions on molecular, cellular, tissue and organ level can lead to disease.

The course encompasses the field of pathology with links to physiology, histology, cell biology, biochemistry and molecular biology.

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 stimulate and support the student's ability to apply their knowledge and professional competence.

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

Examination

The form of examination is an individual written examination and an individual written report. In addition, active participation in compulsory components is required to pass the course.

Compulsory elements include tutorial groups, seminars, laboratory sessions with associated reports and assignments.

The written examination and the written report may be performed an unlimited number of times by those students who have not achieved a passing grade.

The examiner can decide to replace the compulsory element with an equivalent task if there are special reason to do so and if it is possible regarding the character of the compulsory element.

Examination and teaching are normally done in English.

Application for examination / written exam

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

Retake of examination

Point of time for retake examination must normally be announced no later than the time of the regular examination. The extent of the retake examination must be the same as the regular examination.

Examination of students with functional disabilities

If LiU's coordinator for students with functional disabilities has issued a student the right to customized examination at a written hall examination the student has the right to this. If the coordinator instead has given the student a recommendation of customized examination or alternative examination form, the examiner can decide on this if the examiner consider it possible based on the objectives of the course.

Change of examiner

A student who has obtained a failing grade twice for a course or a part of a course is, after request, entitled to be appointed another examiner, unless there are special reasons to the contrary.

Grades

The course is graded with the grades Fail 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.

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.

Department

Medicinska fakulteten