Cardiovascular Biology

Kardiovaskulär biologi
7.5 credits

Single subject course

8FA222

Valid from: 2022 Spring semester

Determined by	**Main field of study**	
The Board for First and Second Cycle Programmes at the Faculty of Health Sciences	Medical Biology	
Date determined	**Course level**	**Progressive specialisation**
2013-10-30	Second cycle	A1X
Revised by	**Disciplinary domain**	
Chairman of The Board for First and Second Cycle Programmes	Medicine	
Revision date	**Subject group**	
2021-08-16	Medical Biology	
Offered first time	**Offered for the last time**	
Spring semester 2014		
Department	**Replaced by**	
Institutionen för biomedicinska och kliniska vetenskaper		

Entry requirements

- Bachelor's degree in a major subject area with relevance for biomedical sciences, equivalent to a Swedish Kandidatexamen with at least 90ECTS credits in the following subjects:
  -biochemistry
  -cell biology
  -molecular biology
  -genetics
  -gene technology
  -microbiology
  -physiology
  -immunology
  -histology
  -anatomy
  -pathology

or similar.

- English corresponding to the level of English in Swedish upper secondary education
  Exemption from Swedish

Intended learning outcomes

The course aims at communicating current understanding of the pathophysiology of cardiovascular diseases such as hypertension, atherosclerosis, arrhythmias and heart failure. Modern pharmacological and interventional therapies for such pathologies will be discussed.

LEARNING OUTCOMES
After completion of the course the student will be able to:

Knowledge and understanding
-Describe the mechanisms involved in different cardiovascular pathologies
-Understand the most commonly used clinical procedures in the evaluation of cardiovascular
function

Competence and skills
-Analyze how therapeutical treatments contribute to cure or alleviate the extent of the
different pathologies
-Develop practical laboratory skills in manipulating and processing tissue samples from cardiac and vascular tissue

Judgement and approach
-Critically evaluate current research in the field of basic and clinical cardiovascular biology

Course content

-Vascular tone and the vascular biology of hypertension
-Endothelial dysfunction and nitric oxide
-Genetic basis of hypertension
-Abdominal aortic aneurysm
-The biology of atherosclerosis: progress and challenges
-Vascular Imaging
-Plaque rupture, myocardial infarction and stroke
-Pharmacological therapies of heart failure
-Heart regeneration
-Molecular mechanisms and clinical implications of angiogenesis
-Pathophysiology of cardiac arrhythmias
-Sudden death, long QT syndrome and HERG channels

Teaching and working methods

General: Linköping University Master's Programme in Experimental and Medical Biosciences applies student-centered learning among which Problem Based Learning (PBL) is one pedagogical philosophy and method. To prepare the students for future employment, practical and experimental work in laboratory settings are important parts of the programme in courses as well as in individual projects.
Specific: In this course lectures, seminars, literature studies, demonstrations and laboratory work are used.

Examination

COMPULSORY ITEMS
Active participation in the compulsory parts is necessary to pass the course, and assessment of them is carried out continuously. Compulsory parts in this course are: laboratory work and seminars.

EXAMINATION
Individual written examination
Individual written report including peer review of other students' reports
Laboratory report (group assignment with individual assessment)

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

Three-grade scale, U, G, VG

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.