Cardiovascular Biology

Single subject course

7.5 credits

Kardiovaskulär biologi

8FA222

Valid from: 2014 Spring semester

Determined by
The Board for First and Second Cycle Programmes at the Faculty of Health Sciences

Date determined
2013-10-30

Main field of study
Medical Biology

Course level
Second cycle

Advancement level
A1X

Entry requirements
At least three years of full-time undergraduate studies (180 credits) in a major subject area with relevance for biomedical sciences. This could include previous studies at faculties of medicine, technology/natural sciences, odontology or veterinary medicine. A major part of courses (90 credits) should be in subjects such as biochemistry, cell biology, molecular biology, genetics, gene technology, microbiology, immunology, histology, anatomy, and pathology. The lowest acceptable grade from undergraduate studies is Pass. Applicants must also have documented knowledge of English equivalent to Engelska B/Engelska 6.

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)

SCOPE OF RE-EXAMINATION
The extent of a re–examination shall be similar to the regular examination

CHANGE OF EXAMINERS
Students who have failed the course or part of the course twice are entitled to request another examiner for the following examination occasion, unless specific reasons are present.

REGISTRATION FOR EXAMINATION
The procedure for registration should be stated prior to the commencement of each course. In other respects, regulations concerning examination and examiners are applied in accordance with Linköping University policy.

Grades

Three-grade scale, U, G, VG

Other information

The planning and implementation of a course must take its starting point in the wording of the course plan. The course evaluation included in each course must therefore take up the question how well the course agrees will the course plan. The course is carried out in such a way that both men's and women's experience and knowledge is made visible and developed. If the course is withdrawn, or is subject to major changes, examinations according to this course plan are normally offered on a total of three occasions within one year, one of them in close connection to the first examination.

Department

Institutionen för klinisk och experimentell medicin