

## Degree Project

Examensarbete  
30 credits

Programme course

8MEA30

Valid from: 2022 Spring semester

|   |                                  |                                   |
|---|----------------------------------|-----------------------------------|
| <b>Determined by</b>  | <b>Main field of study</b>       |                                   |
| Chairman of The Board for First and Second Cycle Programmes | Medical Biology                  |                                   |
| <b>Date determined</b>                                      | <b>Course level</b>              | <b>Progressive specialisation</b> |
| 2012-12-07  | Second cycle                     | A2E                               |
| <b>Revised by</b>   | <b>Disciplinary domain</b>       |                                   |
|   | Medicine                         |                                   |
| <b>Revision date</b>  | <b>Subject group</b>             |                                   |
| 2014-10-06; 2021-05-03                                      | Medical Biology                  |                                   |
| <b>Offered first time</b>                                   | <b>Offered for the last time</b> |                                   |
| Spring semester 2014  |                                  |                                   |
| <b>Department</b>   | <b>Replaced by</b>               |                                   |
| Institutionen för biomedicinska och kliniska vetenskaper    |                                  |                                   |

## Specific information

The aim of the course is that the student should acquire advanced theoretical, methodological and practical knowledge within the field of medical biology. Under supervision, the student works independently with a scientific project, and applies and deepens acquired knowledge on a problem with a clear medical perspective. The course is compulsory semester three and/or four in the Master's Programme in Experimental and Medical Biosciences.

## Course offered for

- Master's Programme in Experimental and Medical Biosciences

## Entry requirements

The special eligibility requirement is the possession of the Degree of Bachelor of Sciences 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 included in the Bachelor degree should be in subjects such as biochemistry, cell biology, molecular biology, genetics, gene technology, microbiology, physiology, immunology, histology, anatomy, and pathology.

For entrance to the course Degree Project (Master Thesis), at least 60 credits including the courses Laboratory Techniques in Experimental Biosciences, Analytical Techniques in Experimental Biosciences, and Project in Experimental and Medical Bioscience, 15 or 30 credits, must be completed.

Applicants must also have documented skills in English corresponding to the level of English in Swedish upper secondary education (English B). For applicants who have not studied in Swedish upper secondary education, skills in English are normally attested to by means of an international language test.

## Intended learning outcomes

By the end of the course the students will be able to:  
Knowledge and understanding

- Obtain advanced theoretical and methodological knowledge within an area of the biomedical field

Competence and skills

- Identify scientific questions and make connections to current research within the area, and establish hypotheses and aims
- Plan and perform scientific, laboratory experiments and/or other relevant forms of data collection
- Compile the results obtained in a scientific report written according to the instructions of a selected scientific journal and present, discuss and defend the report orally at an open seminar
- Reflect on and evaluate the costs of a scientific project
- Reflect on and evaluate the need of an ethical application for a given project

Judgement and approach

- Analyze, interpret, and critically evaluate obtained results
- Critically review reports and oral presentations of other students' work and argue for and against analyses and results

## Course content

- Planning of scientific experiments
- Experimental laboratory work and/or other relevant forms of data collection
- Analyses and processing of obtained results
- Interpretation and critical evaluation of obtained results
- Financing of scientific research
- Ethical issues and ethical permissions

## 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.

## 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: planning document for the project; experimental, laboratory work or other relevant forms of data collection; half time evaluation in the form of a poster; seminar on ethical issues; presence at the presentation of at least seven other students' Degree Project presentations apart from the ones critically reviewed.

### **Examination**

Individual written report in the form of a manuscript to a scientific journal within the area of the project, as well as and oral presentation and defence of it.  
Individual critical review (oral and written) of two other students' Degree Projects.  
Individual statement of costs for the project in the form of an application for grant.

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**

Two grade scale, older version, U, G

## **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.