

## Advanced Immunology

Avancerad immunologi  
7.5 credits

Programme course

8MEA01

Valid from: 2022 Spring semester

<b>Determined by</b> Chairman of The Board for First and Second Cycle Programmes	<b>Main field of study</b> Medical Biology	
<b>Date determined</b> 2012-12-07	<b>Course level</b> Second cycle	<b>Progressive specialisation</b> A1X
<b>Revised by</b>	<b>Disciplinary domain</b> Medicine	
<b>Revision date</b> 2014-10-06; 2021-05-03	<b>Subject group</b> Medical Biology	
<b>Offered first time</b> Autumn semester 2013	<b>Offered for the last time</b>	
<b>Department</b> Institutionen för biomedicinska och kliniska vetenskaper	<b>Replaced by</b>	

## Specific information

The aim of the course is to provide the students with an advanced knowledge of cellular and molecular immunobiology and medical immunology. Particular emphasis is placed on regulation of the immune system and how defects in this regulation can lead to diseases. The course is elective semester one or three in the Master's Programme in Experimental and Medical Biosciences.

## Course offered for

- Master's Programme in Experimental and Medical Biosciences

## Entry requirements

Bachelor's degree in a major subject area with relevance for biomedical sciences, equivalent to a Swedish Kandidatexamen, with a total of at least 90 ECTS credits in some of the following subjects:

- biochemistry
- cell biology
- molecular biology
- genetics
- gene technology
- microbiology
- immunology
- physiology
- histology
- anatomy
- pathology

English corresponding to the level of English in Swedish upper secondary education (Engelska 6).

Exemption from Swedish.

## Intended learning outcomes

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

- Identify and summarize the current status of knowledge within areas of cellular and molecular immunology
- Understand normal regulation of immunity and how aberrations in the regulation can lead to immunological diseases
- Understand the principles of immunomodulatory treatment and the role of the immune system in development of tumours

Competence and skills

- Plan and implement a given laboratory experiment on immune responses in vitro and evaluate and interpret the generated data

Judgement and approach

- Summarize, present, and evaluate current research in immunology in order to discuss new hypotheses within the area

## Course content

- General immunobiology
- Immunogenetics
- Immunopathology
- Methods in immunology, in particular multiple bead array and ELISA for measurement of cytokines and chemokines
- Regulation of the immune system and homeostasis
- Immunological diseases: autoimmunity, allergy, inflammation, infections and immunological aspects of cancer
- Immunotherapy

## 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, tutorial groups, literature in-depth studies, seminars, 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: Tutorial groups, laboratory work and seminars.

### **Examination**

Individual written examination.

Written laboratory report; group assignment with individual assessment.

Written report and oral presentation of literature study; group assignment with individual assessment.

### **Grades**

The grades for the course are either fail (F), pass (G) or pass with distinction (VG). A weighting of the grades on the individual written exam and written report and oral presentation of a literature study form the basis for the course final grade.

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 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.