



**Karolinska  
Institutet**

Course syllabus for

# **Molecular Medicine - Cardiometabolic and Infectious Diseases, 15 credits**

Molekylär medicin - kardiometabola sjukdomar och infektionssjukdomar, 15 hp

This course syllabus is valid from autumn 2019.

Please note that the course syllabus is available in the following versions:

Autumn2019 , [Autumn2021](#) , [Autumn2023](#)

Course code	1BI048
Course name	Molecular Medicine - Cardiometabolic and Infectious Diseases
Credits	15 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Biomedicine
Level	G2 - First cycle 2
Grading scale	Fail (U), pass (G) or pass with distinction (VG)
Department	Department of Medicine, Solna
Decided by	Programme committee for study programmes in biomedicine
Decision date	2019-03-27
Course syllabus valid from	Autumn 2019

## **Specific entry requirements**

At least grade pass (G) for the courses: Introduction to Biomedical Science; General and Organic Chemistry; Cell, Stem Cell and Developmental Biology; Biochemistry; Genetics, Genomics and Functional Genomics; Chemical Biology; Biostatistics; Tissue Biology; Immunology and Microbiology; Neuroscience; and Pathology; and at least grade pass (G) for the parts "Integration of practical features" (4 credits) and "Project work" (2 credits) within the course Physiology, and at least grade pass (G) for the parts "Pharmacokinetics and pharmacodynamics" (2 credits), "Laboratory work in pharmacology" (1.5 credits) and "Group assignments in pharmacology and toxicology" (2.5 credits) within the course Pharmacology and Toxicology, in the Bachelor's Programme in Biomedicine.

## **Objectives**

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

Regarding knowledge and understanding

- describe fundamental functions and molecular mechanisms at the level of the cell and organ in relation to the whole human body and be able to apply the same to the development of disease and treatment,

- consider disease development and treatment from a global health perspective,
- describe the application of molecular medicine in practice,

Regarding competence and skills

- integrate understanding of molecular medicine (theory) with molecular biology (practice),
- demonstrate safe laboratory work,

Regarding judgement and approach

- search for, collect, evaluate, interpret and discuss (in both written and oral forms) specialised information in relation to at least one of the topics covered within the course,
- demonstrate understanding of ethical aspects of research involving human and/or animal material,
- take responsibility for his/her own learning.

## Content

The course focuses on the molecular, cellular and physiological mechanisms, pathology, diagnosis and treatment of common cardiometabolic and infectious diseases, including global aspects. Relevant molecular biology technologies used within translational research in the field of these diseases are reviewed.

The course is divided into the following parts:

Disease mechanisms, pathology, diagnosis and treatment, 3 hp  
Self-directed learning exercises covering different topics within the course.

Research plan proposal, 3 hp  
To write a research proposal related to one of the topics covered in the course.

Laboratory practicals and clinical demonstrations, 4 hp

Integration of theory and practice, 5 hp  
A summative examination of the course's contents.

### **Disease mechanisms, pathology, diagnosis and treatment, 3.0 hp**

Grading scale: GU  
Self-directed learning exercises covering different topics within the course.

### **Research plan proposal, 3.0 hp**

Grading scale: GU  
To write a research proposal related to one of the topics covered in the course.

### **Laboratory practicals and clinical demonstrations, 4.0 hp**

Grading scale: GU

### **Integration of theory and practice, 5.0 hp**

Grading scale: VU

## Teaching methods

This is an advanced course requiring students to take responsibility for their own learning. Learning is encouraged through the active acquisition of relevant information from appropriate sources by the student. Teaching will be in the form of expert lectures, seminars, group-based work and laboratory practicals.

## Examination

Disease mechanisms, pathology, diagnosis and treatment (3 credits). The examination consists of oral or written presentation of assignments handed out during the course. The assignments comprise essay-type questions and problems covering different course topics. Written work is to be handed in before the end of the course according to the times specified in the schedule. Graded (Fail/Pass).

Research plan proposal (3 credits). The examination consists of oral and written presentation. Graded Fail/Pass.

Laboratory practicals and clinical demonstrations (4 credits). The examination consists of evaluation of the student's laboratory skill, participation in demonstrations, and laboratory reports. Graded Fail/Pass.

Integration of theory and practice (5 credits). The examination consists of a written examination. Graded Fail/Pass/Pass with Distinction.

The final grade for the whole course is based on the grade for the part Integration of theory and practice. To pass the whole course (grade pass or above), the grade pass must have been obtained for the other parts.

If there are special grounds, or a need for adaptation for a student with a disability, the examiner may decide to deviate from the syllabus's regulations on the examination form, the number of examination opportunities, the possibility of supplementation or exemptions from the compulsory sections of the course etc. Content and learning outcomes as well as the level of expected skills, knowledge and abilities may not be changed, removed or reduced.

### Compulsory participation

There is compulsory attendance of the introduction to the course (first day), laboratory practicals, clinical/laboratory demonstrations, and group work. The course director assesses if and, in that case, how absence can be compensated. Before the student has participated in all compulsory parts or compensated absence in accordance with the course director's instructions, the student's results for respective part will not be registered in LADOK.

### Limited number of examinations or practical training sessions

Students who have not passed the regular examination are entitled to participate in five more examinations. If the student has failed six examinations/tests, no additional examination or new admission is provided.

The number of times that the student has participated in one and the same examination is regarded as an examination session. Submission of a blank examination is regarded as an examination. An examination, for which the student registered but not participated in, will not be counted as an examination.

## Transitional provisions

After each course occasion there will be at least six occasions for the examination within a two-year period from the end of the course.

## Other directives

The course language is English.

Course evaluation will be carried out in accordance with the guidelines established by the Committee for Higher Education.

Oral evaluation in the form of course council meetings will be carried out during the course.

## **Literature and other teaching aids**

Textbooks specified for earlier courses within the Biomedicine Programme contain some relevant sections. Specific study material handed out during the course form the principal reference material and provides the basis for the examination questions.