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 2023.
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	Pass with distinction, Pass, Fail
Department	Department of Medicine, Solna
Decided by	Programnämnden för biomedicinprogrammen
Decision date	2019-03-27
Revised by	Programme committee for study programmes in biomedicine
Last revision	2023-03-29
Course syllabus valid from	Autumn 2023

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 cardiometabolic and infectious disease mechanisms, from a molecular/cell to whole-body perspective,
- reason about cardiometabolic and infectious diseases from a global equality perspective
- understand and describe how to apply a scientific approach,

Regarding competence and skills

- critically reflect upon, interpret and present biomedical data
- integrate understanding of molecular medicine (theory) with molecular biology (practice),
- demonstrate safe laboratory work and skills in selected experimental techniques

Regarding judgement and approach

- search for, collect, evaluate, interpret and discuss (in both written and oral forms) relevant information in relation to at least one of the topics covered within the course,
- demonstrate understanding of ethical aspects of research involving humans and/or animals,
- reflect on equality and sustainable development within the course topics
- take responsibility for their own learning within the subjects taught in the course.

Content

The course focuses on developing the student's scientific approach and skills. This is achieved by using cardiometabolic and infectious diseases as a basis for integrating molecular, cellular, physiological and pathological mechanisms from a local and global health perspective. Relevant molecular biology and data analysis techniques are reviewed, and interpretation and presentation of data is considered.

The course is divided into the following parts:

Scientific approaches and skills in the context of cardiometabolic and infectious diseases, 3.0 hp

Grading scale: GU

Self-directed learning exercises covering different topics within the course. Includes seminars, journal clubs and workshops requiring individual preparation. Learning activities focus on explaining, discussing and problematizing around a relevant topic or research article.

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 demonstrations, 4.0 hp

Grading scale: GU

Experimental laboratory work. Lab seminars in which results from experimental lab work are presented and discussed together with peers. This part integrates preparation of written explanations, such as lab reports, with participation in analytical discussions in smaller groups.

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

Scientific approaches and skills in the context of cardiometabolic and infectious diseases (3 credits). The examination consists of contribution to relevant discussions in seminars, as well as oral and written presentation of assignments. The assignments comprise questions and problems covering different course topics. Graded (Fail/Pass).

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

Laboratory practicals and demonstrations (4 credits). The examination consists of active participation in the laboratory work and seminars, and written reports. Graded Fail/Pass.

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

Written work is to be handed in before the end of the course according to the times specified in the schedule. 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
The course's introduction, workshops, seminars, laboratory practicals, demonstrations, group assignments and presentations are compulsory. The course examiner assesses if and, in that case, how absence from compulsory components can be compensated for. A student's study results cannot be finalised/registered until the student has participated in the compulsory components or compensated for their absence in accordance with the examiner's instructions. Absence from a compulsory component may mean that the student cannot compensate for absence until the next time the course is given.

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.

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.