Course syllabus for

Frontiers in Biomedicine, 10.5 credits

Avancerad biomedicin, 10.5 hp
This course syllabus is valid from autumn 2021.
Please note that the course syllabus is available in the following versions:
Autumn2021 , Autumn2022

Course code	4BI107
Course name	Frontiers in Biomedicine
Credits	10.5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Biomedicine
Level	AV - Second cycle
Grading scale	Pass with distinction, Pass, Fail
Department	Department of Medicine, Solna
Participating institutions	• Department of Microbiology, Tumor and Cell Biology • Department of Neuroscience • Department of Cell and Molecular Biology • Department of Medicine, Huddinge • Department of Clinical Science, Intervention and Technology • Department of Molecular Medicine and Surgery
Decided by	Programme committee for study programmes in biomedicine
Decision date	2021-02-25
Course syllabus valid from	Autumn 2021

Specific entry requirements

A Bachelor's degree or a professional degree worth at least 180 credits in biomedicine, biotechnology, cellular and molecular biology, medicine, or the equivalent. Proficiency in English equivalent to the Swedish upper secondary school course English 6/English B.

Objectives

The aim of the course is that the student should understand the connection between how changes at the molecular level can influence basic functions in individual cells and/or organs in relation to the human body; special focus is placed on changes from healthy to diseased tissue and on the connection between symptoms, diagnosis and treatment of different diseases. The student should also acquire professional skills and generic competences. The course serves as an introduction to the Master's Programme in Biomedicine.

On completion of the course, the student should be able to:

Regarding knowledge and understanding

- explain basic functions and molecular mechanisms at the level of the cell and organ in relation to the whole human body,
- connect knowledge of basic functions and mechanisms at the molecular level to processes such as disease development, diagnosis and treatment,
- consider disease development, diagnosis and treatment from the perspectives of global health and gender dimension,

Regarding competence and skills

- integrate knowledge of theoretical with practical biomedicine,
- evaluate, interpret and discuss (in both written and oral forms) specialised information in relation to topics covered within the course,
- identify current challenges in the biomedical field and propose ways to advance research in these areas,

Regarding judgement and approach

- critically analyse frontline biomedical topics,
- reflect on ethical aspects of research involving humans and animals.

Content

The course considers common human diseases from a translational medicine perspective. Cardiometabolic diseases, infectious and inflammatory diseases, diseases of the nervous system, cancer, developmental and regenerative medicine, and genetics, genomics and cell biology are covered. The global health perspective is discussed and skills for professional development are included.

The course is divided into the following parts:

Disease mechanisms and translational medicine, 5.0 hp

Grading scale: VU

Advanced biomedical knowledge of different diseases covered within the course. Theoretical background is integrated with knowledge of appropriate molecular techniques.

Journal Club, 2.5 hp

Grading scale: GU

In depth studies of recent scientific articles. Emphasis is placed on individual preparation and on active participation in critical discussions of the articles, their theories and scientific concepts.

Biomedicine - professional skills, 3.0 hp

Grading scale: VU

Training of professional skill sets within the framework of the course's contents. Both written and oral formats are covered.

Teaching methods

The course is at Master's level, where students are assumed to be familiar with the most common study methods in higher education. The fundamental pedagogical view is based on learning as an active research process. Structured learning activities include workshops, seminars, expert lectures and journal clubs. Particular emphasis is placed on peer-learning and self-studies in groups and at the individual level.

Examination

Disease mechanisms and translational medicine (5 credits). The examination consists of written assignments and oral presentations. Graded Fail/Pass/Pass with distinction.

Journal club (2.5 credits). The examination consists of oral and written analysis of scientific articles. Graded Fail/Pass.

Biomedicine - professional skills (3 credits). The examination consists of written assignments and oral presentations. 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. To pass the whole course (grade of "Pass" or above), a grade of at least "Pass" must have been obtained for all parts of the course. To obtain a final grade of "Pass with distinction", a grade of "Pass with distinction" must be obtained for both "Disease mechanisms and translational medicine" and "Biomedicine - professional skills".

Compulsory participation
The course's introductory activities, workshops, seminars, journal clubs, group assignments and presentations, and lectures linked to these parts 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.

Limitations of the 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.

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 section/s 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.

Other directives

The course language is English and examination is performed in English.

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

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

Literature and other teaching aids

Specific study material and reference articles will be provided during the course.