



**Karolinska
Institutet**

Course syllabus for

Frontiers in Biomedicine: Research Project 1, 15 credits

Avancerad biomedicin: forskningsprojekt 1, 15 hp

This course syllabus is valid from spring 2025.

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

Spring2022 , Spring2023 , Spring2025

Course code	4BI114
Course name	Frontiers in Biomedicine: Research Project 1
Credits	15 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 Medical Biochemistry and Biophysics
Decided by	Programnämnden för biomedicinprogrammen
Decision date	2021-10-22
Revised by	Programme committee for study programmes in biomedicine
Last revision	2024-10-10
Course syllabus valid from	Spring 2025

Specific entry requirements

At least the grade G (pass) for the course Frontiers in Biomedicine within the Master's programme in Biomedicine.

Objectives

The aim of the course is to enable students to perform a research project whilst broadening and deepening the student's methodological knowledge within the field of biomedicine. Students, who will be individually supervised during the project work, will summarise, present and discuss their results.

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

Regarding knowledge and understanding

- explain the choice of methods to investigate a scientific question,
- acquire and critically review relevant scientific literature to broaden and deepen their knowledge

of the method and biomedical area.

Regarding competence and skills

- conduct a research project in which experimental methods are applied to investigate a stated scientific issue,
- show independent, critical and creative thinking when applying a method to investigate a scientific issue,
- account for and analyse own laboratory work by writing a scientific report according to scientific ethical rules for publication of results, and discuss scientific methods and research results within a group of peers,
- critically and objectively assess others' scientific work and be able to give relevant feedback.

Regarding judgement and approach

- demonstrate realistic time planning and appropriate attitude regarding collaboration,
- make connections between theoretical and practical knowledge,
- carry out the project work according to Karolinska Institutet's guidelines for ethically correct research, and handle reliably and with good order scientific material.

Content

The course consists of an individual research project with an emphasis on methodology according to an individual study plan that also serves as a project description. The individual study plan is established by the supervisor before the course. At the end of the practical work, a research report is written that is to be presented orally and discussed.

Projects can be carried out at another university or public authority than Karolinska Institutet, or at a company.

Teaching methods

Individual experimental work (laboratory or theoretical), and scientific writing under supervision. Participation in seminars, journal clubs or similar activities as offered in the respective research environments. Participation in and reflection on peer-to-peer meetings for continuous progress reporting, exchange of ideas, discussion of methods used and critical assessment of students' work. Reading of scientific literature as recommended by the supervisor and the student's own judgment. Peer review of project summaries.

Examination

The course is graded Pass/Fail/Pass with distinction.

Passing of the course requires approved:

- participation in the research project,
- oral presentation and discussion,
- written project report,
- written discussion about the method used,
- peer feedback on another student's project report.

The oral presentation and discussion, the peer-to-peer feedback, and the written discussion about the used method are graded Fail/Pass. The work performance and project report are graded Fail/Pass/Pass with distinction and form the basis of the course grade which is set by the examiner after consultation

with the supervisor and the examining teacher. To obtain a final grade of "Pass with distinction", a grade of "Pass with distinction" must be obtained for both the work performance and the written project report.

Students that fail to submit compulsory assignments (reflections, peer-to-peer review, written report) by the deadlines will lose the opportunity to be graded with pass with distinction on the course.

Compulsory participation

Attendance is compulsory for the research work, and the oral presentation and discussion. Peer-to-peer progress meetings are compulsory. After each meeting students submit a self-reflection. Students give peer-to-peer feedback to fellow students on their written summary. The examiner assesses if and, in that case, how absence from compulsory components can be compensated. The student must participate in all compulsory parts or compensate for absence in accordance with the examiner's instructions, in order to pass the course. Absence from a compulsory activity may result in the student not being able to compensate the absence until the next time the course is given.

Limitations of the number of examinations or practical training sessions

A student who does not pass the oral presentation and discussion, the written project report, the written discussion about the method used or the peer feedback on another student's project report at their first attempt is entitled to participate in five additional examination sessions. If the student has failed six examinations, no additional examination sessions are provided.

Physically attending or otherwise commencing an examination is regarded as an examination session. An examination, for which the student registered but did not participate, is not counted as an examination session.

The examiner may terminate a student's practical training or equivalent at a placement with immediate effect if the student shows such serious deficiencies in knowledge, skills or approach that the safety of the student and/or other personnel, equipment or valuable reagents/material at the placement are at risk. If a placement requires termination in this way, the student fails the practical work. In such cases, an individual action plan must be drawn up, stating the actions that are required before the student is permitted to perform a new practical placement.

A student who does not pass the practical work (as specified in the assessment criteria) at their placement at their first attempt should perform practical work at a new placement. If the student fails the practical work twice, no additional examination sessions are provided, and the student may not register for future course occasions.

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 Committee of Higher Education.

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

Literature and other teaching aids

Individual reading list will be established in the project plan.