



**Karolinska
Institutet**

Course syllabus for

Advanced Human Physiology Research, 7.5 credits

Avancerad humanfysiologisk forskning, 7.5 hp
This course syllabus is valid from autumn 2024.

Course code	2QA345
Course name	Advanced Human Physiology Research
Credits	7.5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Not applicable
Level	Second cycle, in-depth level of the course cannot be classified
Grading scale	Pass with distinction, Pass, Fail
Department	Department of Laboratory Medicine
Decided by	Education committee LABMED
Decision date	2023-12-28
Course syllabus valid from	Autumn 2024

Specific entry requirements

A Bachelor's degree or a professional degree equivalent to a Swedish Bachelor's degree of at least 180 credits in natural sciences, biomedical laboratory science, medicine, biology, biomedicine, sports science or physiotherapy. And proficiency in English equivalent to English B/English 6.

Objectives

The general aim of the Advanced human physiology research course is to learn how to plan human scientific studies in a clinical setting. The student should understand the different stages of the clinical research process - from evaluating and selecting suitable methods for the intended outcomes to ethical issues and defining *standard operating procedures*.

After the course, the student should be able to:

- Plan a clinical trial based on primary and secondary outcome measures, ethical and legal aspects, administrative processes, statistical considerations, safety and hygiene, handling and ensuring quality of data and identifying potential conflicts of interest.
- Evaluate different methods to assess the following outcome measure:
 - Cardiac function

- Respiratory function
- Muscle function
- Body composition
- Assess the validity and reliability for methods measuring cardiac, respiratory, and muscle function, and body composition
- Develop a standard operating procedure for a specific method and population

Content

- Primary and secondary outcomes in clinical trials, ethical, statistical and administrative aspects, safety, organization of data and conflicts of interests.
- Ethical questions in human research.
- Physiological methods including multiple methods for the same outcome measure, from easily available to more advanced.
- Technical and biological variability in the methods that are used.

Teaching methods

The course uses *blended learning* which includes campus lectures and practical exercises and workshops and seminars.

Examination

Written assignment (clinical trial planning) with peer review. Graded Fail/Pass.

Oral presentation and defense of assignment. Graded Fail/Pass.

Individual written assignment of standard operating procedure. Grade Fail/Pass/Pass with distinction.

Written assignments should be submitted according to the schedule.

To pass the course (the grade Pass or higher) is required at least passed on all components in the course.

To become Pass with distinction in the course, the grade Pass with distinction on the individual written assignment is required.

Compulsory participation

Participation in the practical exercises, seminars and peer review are compulsory.

A Pass grade requires attendance at compulsory lectures. The examiner decides if, and how, absence from compulsory parts can be compensated. Study results cannot be reported until the student has participated in compulsory course elements or compensated for any absence in accordance with instructions from the examiner. Absence from a compulsory educational component may mean that the student cannot take the opportunity until the next time the course is given.

Limitation of number of examinations

The students who have not passed the course according to the schedule are allowed to revise and hand in the report and/or do the oral presentation for at most five additional occasions. If the student has failed six times in total, no further examination or continued course participation is allowed. As submission, it is counted that the student submitted a revised version of the assignment and/or orally presented to examining teachers.

In the event of special circumstances, or if a student with a disability is in need of certain adjustments, the examiner may decide to depart from the syllabus' regulations on examination form, number of examination opportunities, possibility of completion or exemption from compulsory educational elements, etc. Content and intended learning outcomes as well as the level of expected skills, knowledge and abilities must not be altered, removed or lowered.

Other directives

The course is given in English, and the examinations are in English. Course evaluation takes place according to the guidelines that are established by the Committee for education at basic level and second cycle.

Literature and other teaching aids

Recommended literature

Literature, such as scientific articles, will be provided during the course.