



**Karolinska
Institutet**

Course syllabus for

Degree project in biostatistics and data science, 30 credits

Examensarbete i biostatistik och datavetenskap, 30 hp

This course syllabus is valid from spring 2025.

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| Course code | 5BD004 |
| Course name | Degree project in biostatistics and data science |
| Credits | 30 credits |
| Form of Education | Higher Education, study regulation 2007 |
| Main field of study | Biostatistics and Data Science |
| Level | AV - Second cycle |
| Grading scale | Pass with distinction, Pass, Fail |
| Department | Department of Medical Epidemiology and Biostatistics |
| Decided by | Programme committee for study programmes in biomedicine |
| Decision date | 2023-10-11 |
| Course syllabus valid from | Spring 2025 |

Specific entry requirements

At least the grade G (Pass) for all compulsory courses in semesters 1 and 2 as well as the course "Biostatistics 2 Methods and applications" in semester 3.

Objectives

The course aims to equip the student with the knowledge, competence, skills, and judgement to be able to apply theory, models, and methods in biostatistics and data science to independently analyse and solve a major problem related to biology, medicine, and health science. The course aims to equip the student with the knowledge, competence, skills, and judgement to plan and carry out the work, and present and defend the work both orally and in a professionally written report.

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

Regarding knowledge and understanding

- Show knowledge of the disciplinary foundation of the chosen subject area and an advanced understanding of current research and development activities as well as advanced method knowledge.

Regarding skills and abilities

- Demonstrate the ability to with overall view, critical and systematic, search, collect and integrate knowledge as well as identify his/her need of additional knowledge.
- Demonstrate the ability to identify, analyse, assess and handle complex phenomena, issues and situations also with limited information
- Demonstrate the ability to plan and with adequate methods carry out qualified assignments within given time frames as well as to evaluate this work.
- Show such skills that is required to participate in research and development or to independently work in other qualified activities.
- Demonstrate the ability to account orally and in writing in dialogue with different groups and discuss his/her conclusions and the knowledge and the arguments that underlie these.

With respect to judgement and approach

- Demonstrate the ability to make assessments considering relevant scientific, social and ethical aspects.
- Adapt to evolving methodologies and emerging trends in statistical methods for biomedical research, fostering a lifelong commitment to professional development and continuous learning.
- Act respectfully towards researchers, patients, other students, teachers and staff as well as take active responsibility for his/her own learning and professional development.

Content

The course starts with that a project plan is prepared by the student together with the supervisor. An individual project work is carried out based on what has been agreed in the project plan. The work is presented in a written report as well as orally at a seminar. Also included is to write a press release and to publicly discuss and oppose another degree project at the seminar.

Teaching methods

The teaching consists of supervision and seminars.

Examination

The examination consists of the following components:

- Written presentation, including a project plan, a scientific report, and a press release;
- Individual oral presentation;
- Critical review of a fellow student's written report.

Participation in seminars is compulsory. The examiner decides how absences can be compensated.

Detailed assessment criteria are made available at the beginning of the course.

The examiner decides the grade after having consulted the supervisor and examining teachers, based on the implementation and final presentation of the work.

Late submission of the independent project will influence the right to supervision and potentially effect the final grade.

Students who have passed the examination may not undertake a new examination in an attempt to obtain a higher grades.

Before the student has participated in all compulsory parts or compensated absence in accordance with the course director's instructions, the student's results will not be registered.

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.

Literature and other teaching aids

Study material and reference articles will be provided during the course.