GÖTEBORG UNIVERSITY

Faculty Board of Science

MSA920 Thesis in Mathematical Statistics for the two-year Masters Program in Mathematical Sciences, specialization Biostatistics

30 higher education credits

Second Cycle

This syllabus is a binding document.

1. Confirmation

The syllabus was confirmed by the Department of Mathematical Sciences on September 1, 2009 to be valid from September 1, 2009.
Field of education: Science. Responsible department: Mathematical Sciences.

2. Position in the educational system

The course MSA920, 30 higher education credits, can only be taken as a part of the two-year Masters Program in Mathematical Sciences. The course constitutes a degree project for the Master's degree in Mathematical Statistics.

3. Entrance qualifications

To qualify for the course the student should be registered in the Masters Program in Mathematical Sciences. The student must have completed at least four of the following courses

- MSA600 Statistical genetics
- MSA610 Population genetics
- MSA630 Survival analysis
- MSA620 Design and analysis of clinical trials
- MSA640 Statistical analysis of categorical data
- MSA650 Linear mixed models for longitudinal data.

4. Course content

In this project course the student works alone or in a pair investigating a specific stochastic aspect in the area of Biostatistics. Every such project has an advisor and an examiner. The topic of the project course is determined jointly by the examiner, the advisor and the student. The work typically includes

- reading relevant scientific literature,
- building suitable statistical models,
- analysis of these statistical models by applying probability theory and statistical methods and by using properly chosen computer software.

The results are to be submitted as a Master's thesis report written in English, which shall be presented orally at a seminar.

The student is supposed to spend approximately 800 hours on this course. The student has the right to 20 contact hours with the advisor (for a pair work it is 30 hours together for both students).

5. Learning outcomes

After completing the course, the student will be able to

- compare and choose after critical judgment among alternative statistical and probabilistic models in a particular biological or medical research context
- apply biostatistical and probabilistic techniques learned from the basic and advanced courses in Mathematical Statistics with help of research literature and software
- demonstrate a deeper understanding and gained insight into state of the art knowledge within the subject of the Master's degree project
- identify and state relevant problems as well as plan and perform advanced tasks within given time frames
- give oral and written presentations of one's own and others results
- critically evaluate one's own current state of knowledge, identify the need for further knowledge, and take responsibility for acquiring the needed knowledge.

6. Required reading

Determined jointly by the examiner, the advisor and the student.

7. Assessment

The final evaluation and grading of the student's performance in the course is done by the examiner. It is based on the student's contribution to the written report, which should be clearly stated in the thesis in the case of a pair project, as well as on the seminar presentation and its discussion.

8. Grading scale

The grades are Fail (U), Pass (G), and Pass with Distinction (VG).

Students who are contractually entitled to ECTS grades should inform the examiner about this no later than one week after the start of the course.

Students without such entitlement will not be awarded ECTS grades. Grades will be converted into ECTS terminology according to a standard model approved by the University President.

9. Course evaluation

A course evaluation will be performed during and after the course in cooperation among the student, the advisor, the examiner and the director of undergraduate studies.

10. Additional information

The course speed shall be at least 7.5 credits per quarter. It should be finished within one year following its start. Early in the course, the student together with the advisor shall establish a project plan describing the problem setting and a timetable. Such a plan covering a period of more than one year requires special approval by the director of undergraduate studies.

The timetable can be changed after approval by the director of undergraduate studies.

A student, who failed to finish this project course in accordance with the approved timetable, has no right to demand additional supervision.