

MSA630, SURVIVAL ANALYSIS, 7.5 credit points

Level: advanced

1. Authorisation.

The course plan has been authorised by the vice-dean of the Department of Mathematical Sciences on November 9, 2006, to be valid from July 1, 2007.

Educational field: Mathematical Sciences

2. Educational context.

The course is part of the Master Program in Mathematical Sciences. It is also open for students outside the program who meet the course prerequisites.

3. Prerequisites.

First courses in probability theory and inference theory, corresponding to MSG100 and MSG200.

4. Goals and learning outcomes.

The course is intended to give an introduction to the type of data that typically arises in survival analysis, and the standard tools for the analysis of survival type data. After completed course the student should:

- be able to analyze survival type data
- be able to interpret results and discuss the implications for the scientific questions at hand.

5. Course description.

Different types of censoring and truncation mechanisms are studied. The course introduces the Kaplan-Meier and Nelson-Aalen estimators for nonparametric problems. The semiparametric models treated are the Cox multiplicative regression

model and the Aalen additive regression model. Methods for model selection are discussed. Residual analysis for assessing the model fit is treated. An informal introduction to the counting process approach to survival analysis is given.

6. Literature.

See separate list.

7. Assessment.

The examination consists of computer assignments during the course, and an oral exam at the end of the course.

8. Grades.

The grade levels are Fail (U), Pass (G), and High Pass (VG). A wish for an ECTS grade should be reported to the examiner at the beginning of the course.

9. Course evaluation.

In the middle of the course the teacher arranges a feedback discussion with the students and at the end of the course the students will be asked to answer a questionnaire. The results of the questionnaire will be processed by the teacher together with student representatives.

10. Additional information.