

# Syllabus

for course at first level

**Analysis of Survival Data with Demographic Applications**  
**Analys av överlevnadsdata med demografisk tillämpning**

**7.5 Higher Education  
Credits  
7.5 ECTS credits**

<b>Course code:</b>	ST303G
<b>Valid from:</b>	Autumn 2014
<b>Date of approval:</b>	2007-04-25
<b>Changed:</b>	2014-03-12
<b>Department</b>	Department of Statistics
<b>Main field:</b>	Statistics
<b>Specialisation:</b>	G2E - First cycle, has at least 60 credits in first-cycle course/s as entry requirements, contains degree project for BA/BSc

## Decision

This syllabus was approved by the Board of the Department of Statistics on April 25, 2007, and revised 2014-03-12.

## Prerequisites and special admittance requirements

Statistisk teori fk, 10 credits, or Statistical theory II, 15 ECTS credits, or Statistical theory with applications, 15 ECTS credits or equivalent.

## Course structure

Examination code	Name	Higher Education Credits
11AE	Analysis of Survival Data with Demographic Applications	7.5

## Course content

Basic concepts like Censoring, Functions of Survival time and their nonparametric and parametric estimation and comparison (Life-table, Kaplan-Meier, Nelsen-Aalen methods; Log-Rank & related tests; as well as theoretical distributions like the Weibull, exponential, log-normal and gamma); Models of Regression type - Proportional Hazards models, Parametric Models for the survival time, Log-Linear hazard models for grouped survival data as well as logistic regression for dichotomous outcome variable – and overview to advanced topics like multilevel modelling, unobserved heterogeneity, and selection biases.

## Learning outcomes

To pass the course the student should be able to:

- Describe and explain basic concepts in survival data and their statistical distributions,
- Estimate and compare survivor functions for different categories
- Model relationship between survival functions and explanatory variables as well as test hypotheses related to models and parameters
- Make use of one or more statistical program software to describe and analyse survival data in various formats – binary, grouped, continuous.
- Identify the limitations in the basic survival models and possible alternatives.

## Education

The teaching consists of lectures and exercises.

### **Forms of examination**

- a. Examination will be done by assessing the learning outcomes. Examination will be in the form of a written test
  - b. Grading is done according to a seven-point scale related to the specified learning outcomes:
    - A = Excellent
    - B = Very Good
    - C = Good
    - D = Satisfactory
    - E = Adequate
    - Fx = Inadequate
    - F = Totally Inadequate
  - c. The assessment criteria for the course will be distributed at the beginning of the course.
  - d. In order to pass the course, the grade E or higher is required on the course unit.
  - e. Students who have received the grade Fx or F on an examination are entitled to at least four additional examinations to achieve the lowest grade E as long as the course is given. Neither Fx or F are passed grades and both demands a re-examination. Students who have received the grade E on an examination may not retake this examination in order to attempt to achieve a higher grade.
- Students who have received the grade Fx or F on an examination on two occasions by the same examiner have the right to request that a different examiner be appointed to set the grade of the examination. The request must be in writing and sent to the head of the department. The examination denotes all compulsory elements of the course.
- Every time the course is given, there should be two examination opportunities during the current semester.

### **Interim**

Students can request examination in accordance with this syllabus once per semester during a period of three semesters after the course is no longer given. The request must be in writing and sent to the head of the department.

### **Required reading**

The course literature is described in an appendix to the syllabus.