Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

SLUkurs

Syllabus

PFS0010 Analysis of Survival Data, 7.5 credits

Syllabus approved

2003-07-01

Subjects

Statistics, Computer Science and Systems Science/Biology/Economy

Education cycle

Third cycle

Grading scale

Pass / Failed
The requirements for attaining different grades are described in the course assessment criteria which are contained in a supplement to the course syllabus. Current information on assessment criteria shall be made available at the start of the course.

Language

English

Prior knowledge

This course is intended for PhD students in natural or social sciences.

Basic courses in mathematical statistics with applications for students in economics or biology (5 credits)

Objective, including learning outcomes

In diverse fields of human activity such as public health, medicine, biology, economics, engineering etc there is a need to analyze time-to-event data. This type of data differ from data usually described in the routine methods of statistical data analysis. The time-to-event data are usually incomplete due to presence of censored and truncated observations.

A special deep mathematical theory (survival analysis) has been developed to deal with such data. The probability and statistical aspects are essential parts of the theory. Numerical applications of survival analysis methods are widely available.

The main aim of the course is to supply its participants with basic tools used in the analysis of time-to-event data including hands-on exercises. Students are encouraged to bring their own data sets. Special attention will be given to interpretation of obtained numerical results.

Content

o Models for censored and truncated survival data. Survival and hazard functions. Mean residual life function. Competing risks. Regression models.
o Statistical inference: Estimation, Confidence Intervals, Hypothesis Testing
o Semiparametric Proportional Hazards Models. Partial Likelihood. Estimation. Local Tests.
o Additive Hazards Regression Models: Aalen's Nonparametric Additive Hazard Model.
o Regression Diagnostics Residuals: Cox-Snell, Martingale, Deviance.
o Parametric Regression Models: Weibull, Log Logistic Distribution.
o Resampling Methods.

Requirements for examination

Exercises, laboratory and written examination

Additional information

Course Period: October 02 – November 28, 2003.
Deadline for application: September 15, 2003

Responsible department

Department of Forest Economics