

Survival Analysis (62203)

Instructors: G.BAKOYANNIS

Elective Course, 3rd or 4th semester, 5 ECTS units

Course level: Graduate (MSc)

Language: Greek

Course Description

The survival and hazard functions are presented along with the likelihood function and its use in nonparametric estimation (Kaplan-Meier and Nelson-Aalen estimators). Time to event data are modelled in a parametric and semiparametric manner. The Cox proportional hazards model is utilised and appropriate residuals, including martingale, deviance and Schoenfeld are defined. An introduction to time-dependent covariates and competing risks concludes the course.

Prerequisites

Probability, Statistics and computational methods.

Target Learning Outcomes

Each student will become familiar with the basic principles of survival data, the Kaplan-Meier estimator and parametric modelling. They will be able to use the Cox model, select its variables and assess the model via the appropriate residuals.

Recommended Bibliography

David Collett. Modelling Survival Data in Medical Research. 3rd Edition. CRC Press.

Teaching and Learning Activities

Weekly lectures and assignments. Detailed presentation of the relevant R code.

Assessment and Grading Methods

70% of the grade will be based on the final assignment which is based on the analysis of real time to event data and 30% of the grade is based on the assignments.