UCLouvain

lstat2220

2018

Analysis of survival and duration data

4 credits	15.0 h + 5.0 h	Q1

Teacher(s)	Van Keilegom Ingrid ;
Language :	French
Place of the course	Louvain-la-Neuve
Aims	1 The aim is to familiarize the student with the basic concepts and models in survival analysis. Moreover, by making use of computer packages, the student will be able to solve real data problems. The course stresses more the methodology, the interpretation, and the mechanisms behind common models in survival analysis, and less the theoretical and mathematical aspects. - - - - *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Content	Content - Nonparametric estimation of basic quantities (Kaplan-Meier estimator of the survival distribution, Nelson-Aalen estimator of the cumulative hazard function,...), the development of some (asymptotic) properties of these estimators, and hypothesis testing regarding the equality of two or more survival curves - Proportional hazards model (estimation of model components, hypothesis testing, selection of explanatory variables, model validation, ...) - Accelerated failure time model (estimation of parameters in model, hypothesis testing, model selection, model validation,...) - Frailty model (introduction, motivation, estimation of model components, ...) Teaching methods The course consists of lectures, meetings exercices and an individual project on computer.
Bibliography	• Cox, D.R. et Oakes, D. (1984). Analysis of survival data, Chapman and Hall, New York. • Hougaard, P. (2000). Analysis of multivariate survival data. Springer, New-York. • Klein, J.P. et Moeschberger, M.L. (1997). Survival analysis, techniques for censored and truncated data, Springer, New York.
Faculty or entity in charge	LSBA

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Mathematics	MATH2M	4		
Master [120] in Statistic: Biostatistics	BSTA2M	4		
Master [120] in Biomedical Engineering	GBIO2M	4		
Master [120] in Statistic: General	STAT2M	4		
Master [120] in Mathematical Engineering	MAP2M	4		