






In view of the health context linked to the spread of the coronavirus, the methods of organisation and evaluation of the learning units could be adapted in different situations; these possible new methods have been - or will be - communicated by the teachers to the students.

4 credits

15.0 h + 5.0 h

Q1

Teacher(s)	Van Keilegom Ingrid ;
Language :	French
Place of the course	Louvain-la-Neuve
Aims	<p>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.</p> <p>-----</p> <p><i>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".</i></p>
Evaluation methods	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</p> <p>The evaluation consists of an oral exam (in order to test the general understanding of the course) and of a project on computer (analysis of real data).</p>
Teaching methods	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</p> <p>The theory sessions will be given in the form of video sessions in English that are available in Moodle. Question and answer sessions will be organized via Teams, and exercise sessions will take place live in a computer room.</p>
Content	<ul style="list-style-type: none"> • • Introduction to basic concepts (like censoring and truncation, common parametric survival functions,...) • 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,...)
Bibliography	<ul style="list-style-type: none"> • 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.
Other infos	Slides of the course can be downloaded from Moodle.
Faculty or entity in charge	LSBA

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Biomedical Engineering	GBIO2M	4		
Master [120] in Mathematics	MATH2M	4		
Master [120] in Mathematical Engineering	MAP2M	4		
Master [120] in Statistic: Biostatistics	BSTA2M	4		
Certificat d'université : Statistique et sciences des données (15/30 crédits)	STAT2FC	4		
Master [120] in Statistic: General	STAT2M	4		