



4.00 credits

15.0 h + 5.0 h

Q2

Teacher(s)	Legrand Catherine ;
Language :	English
Place of the course	Louvain-la-Neuve
Prerequisites	<p>Concepts and tools equivalent to those taught in teaching unit LSTAT2220 Analyse des données de survie et de durée</p> <p>The student should be familiar with the basis of analysis of survival data, including the definition, estimation and interpretation of the survival function and of the (cumulative) hazard function, and of the most commonly used regression models (parametric proportional hazards models, semi-parametric Cox model, Accelerated Failure Time model) for independent survival data</p>
Main themes	<p>Classical survival analyses techniques assume that (1) the observations are independent, (2) if followed long-enough all observations will eventually experience the event of interest, and (3) only one event is of particular interest and no other event may prevent this event to occur. In this course, we will investigate other models which are applicable for correlated observations (frailty models), models which allow to consider the case when a proportion of the population will never experience the event of interest (cure models), and models to be applied in the case of competing risks (competing risks models) or of several events of interest (multi-state models)..</p>
Learning outcomes	<p>At the end of this learning unit, the student is able to :</p> <p>1 The objectives of the course are to provide each year a comprehensive exposition of one or more specific topic(s) of special interest in the field of biostatistics.</p>
Evaluation methods	<p>If the course is organised in a classical format:</p> <ul style="list-style-type: none"> • A closed book oral exam will be held covering all the material covered in the course. <p>If the course is organised as a flipped classroom:</p> <ul style="list-style-type: none"> • Students will be assessed on an ongoing basis on the quality of their presentations, their answers to questions from other students and also on their participation in other students' presentations. • An oral exam with an open and a closed book part will be organised.
Teaching methods	<p>Depending on the number of students registered to the course, the course will take the form of</p> <ul style="list-style-type: none"> * Either a course with lectures and solving exercises on computers * Either a flipped classroom. The course will be structured around guided readings of articles, with question/answer sessions. Students will then be asked to present to the other students the subjects that have been assigned to, answer the questions of the other students and of the professor and also demonstrate active participation during the presentations of the other students.
Content	<p>After a brief summary of so-called "classical" survival analysis techniques, more advanced survival models will be studied, namely frailty models, cure models and competing risks models. Main estimation techniques (parametric and/or semi-parametric models) will be discussed, as well as their implementation in standard statistical software (when available). Cases of applications of these models will be studied and interpretation of these models will be discussed.</p>
Inline resources	All necessary resources will be made available to students via Moodle.
Bibliography	Articles mis à disposition via moodle.
Faculty or entity in charge	LSBA

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Statistics: Biostatistics	BSTA2M	4		
Master [120] in Statistics: General	STAT2M	4		
Certificat d'université : Statistique et science des données (15/30 crédits)	STAT2FC	4		