

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.

5 credits	30.0 h + 7.5 h	Q1
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Teacher(s)	Hafner Christian ;
Language :	English
Place of the course	Louvain-la-Neuve
Main themes	- Introduction to the general linear model - Multiple univariate regression (selection of variables, model validation, multicollinearity, outlier detection, inference concerning regression coefficients, error variance,...) - Univariate analysis of variance (one or more factors, balanced or non-balanced design, fixed, mixed or random effects model, inference concerning main effects, interactions, error variance,...) - Multivariate regression and multivariate analysis of variance
Aims	<p>By the end of this course the student will be familiar with the main linear models that are often encountered in statistics, and, by making use of computer packages, the student will be able to solve real data problems.</p> <p>1 The course stresses more the methodology, the interpretation, and the mechanisms behind linear models, 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>
Content	The course considers different aspects of general linear models (regression models and analysis of variance) : - selection of covariates - multicollinearity - Ridge regression - model validation - inference concerning the parameters in the model (confidence intervals/hypothesis tests for regression coefficients, error variance,... prediction intervals,...) - balanced or non-balanced designs - fixed, mixed and random effects models - multivariate linear models Teaching methods The course consists of lectures, exercise sessions on computer, and an individual project on computer.
Bibliography	Syllabus du cours. Références données au cours.
Faculty or entity in charge	LSBA

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Approfondissement en statistique et sciences des données	LSTAT100P	5		
Minor in Statistics, Actuarial Sciences and Data Sciences	LSTAT100I	5		
Master [120] in Forests and Natural Areas Engineering	BIRF2M	5		
Master [120] in Chemistry and Bioindustries	BIRC2M	5		
Master [120] in Data Science : Statistic	DATS2M	5		
Master [120] in Biomedical Engineering	GBIO2M	5		
Master [120] in Agricultural Bioengineering	BIRA2M	5		
Master [120] in Mathematical Engineering	MAP2M	5		
Master [120] in Data Science Engineering	DATE2M	5		
Master [120] in Statistic: Biostatistics	BSTA2M	5		
Certificat d'université : Statistique et sciences des données (15/30 crédits)	STAT2FC	5		
Master [120] in Data Science: Information Technology	DATI2M	5		
Master [120] in Mathematics	MATH2M	5		
Master [120] in Statistic: General	STAT2M	5		
Master [120] in Environmental Bioengineering	BIRE2M	5		