


3 credits

22.0 h + 10.0 h

Q1

Teacher(s)	Draye Xavier coordinator ;El Ghouch Anouar ;Govaerts Bernadette ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	Quantitative data analysis methods in bioengineering ' Variance analysis with one and more classification factors, crossed or nested ' Generalised linear models (classification and regression factors) ' Random effect and mixed models ' Least square and maximum likelihood methods ' Analysis of categorical datas
Aims	<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>
Evaluation methods	Written exam with methodological questions and exercices méthodologiques, case studies, SAS code writing. Allowed material: 20 pages summary (10 pages resto/verso).
Teaching methods	Course in auditorium Introduction course to data importation in SAS Practical courses prepared by the students, with a test half way during the semester
Content	<p><u>Table of content</u></p> <p>Introduction</p> <p>Models for a quantitative response and one fixed factor</p> <ul style="list-style-type: none"> ' Linear model with one quantitative factor ' Polynomial and non linear model ' Variance analysis with one fixed factor <p>Linear models for one quantitative response and two fixed factors</p> <ul style="list-style-type: none"> ' Variance analysis with two crossed fixed factors ' Multiple linear regression ' Covariancer analysis and general linear model <p>Variance components models</p> <ul style="list-style-type: none"> ' Variance analysis with one random factor ' Estimation of random effects and variance components <p>Mixed linear models</p> <ul style="list-style-type: none"> ' Formulation of random effects and structure of the covariance matrix ' Analysis of common mixed models in biology (genetics, experimental design) ' Analysis of longitudinal data ' Covariance analysis in mixed models <p>Models for categorical data (not included in LBIRA2101A)</p> <ul style="list-style-type: none"> ' Contingency tables ' Logistic regression ' Generalised linear models
Inline resources	Moodle
Bibliography	Documentation obligatoire disponible sur Moodle <ul style="list-style-type: none"> - Transparents de théorie et d'exemples liés au cours - Enoncés d'exercices - Formulaire Documentation facultative disponible sur Moodle <ul style="list-style-type: none"> - Documentation SAS/STAT (PROC GLM et PROC MIXED)
Other infos	This course can be given in English.
Faculty or entity in charge	AGRO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Forests and Natural Areas Engineering	BIRF2M	3		
Master [120] in Environmental Bioengineering	BIRE2M	3		