UCLouvain

lstat2020

2021

Statistical softwares and basic statistical programming

4.00 credits	15.0 h + 15.0 h	Q1

Teacher(s)	Bugli Céline ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	Main themes: - Steps of a statistical data analysis with a statistical software - Classes of statistical software - Statistical graphics: main classes of graphics and efficient use - Basic statistical analysis with "point and click" statistical software. Data cleaning. - Programming in the R language. - Programming in SAS.
Learning outcomes	**At the end of this learning unit, the student is able to :** 1 At the end of this course, the students will have gain a critical view of the different classes of statistical software available on the market and basic culture on statistical algorithms and graphics. They will also be able to realise basic statistical analysis with different software (SAS, R, Excel, SPSS, JMP) and write programs in the R and SAS programming languages.
Evaluation methods	In this course, students are evaluated in two ways: • continuous assessment including two compulsory assignments to be handed in at the end of the term according to a schedule set at the beginning of the term (15% of the final grade) • a written exam on computer during the exam's session (85% of the final grade) The two MANDATORY assignments are programming projects in SAS and R. The written, open book and computer-based exam (if the sanitary situation allows it) consists of solving basic statistical case studies with SAS Enterprise Guide and SPSS (or JMP) software, and SAS and R programming questions. Please note that the mandatory assignments are to be completed during the first quarter of the academic year according to a schedule that will be communicated at the beginning of the course. In case of non submission of an assignment, the student will have 0 on his first exam attempt. However, with the professor's permission, the student may take an additional question to make up the grade in the second session. The student's request to retake the assignment must be made BEFORE the start of the exam session and will only be considered if the assignment has not been has not been returned or is failed (less than 50%).
Teaching methods	The course consists of lectures with demonstrations of statistical software and software use exercises sessions designed to give the student maximum autonomy: each student works at his own pace on the basis of evolving documents. The lectures will be given in co-modal (simultaneous transmission of the course given in auditorium on Teams) and the practical work will be given in face-to-face only. The modalities foreseen will evolve according to the health situation.
Content	Lecture: Steps in statistical analysis of computer data. Introduction to the different classes of statistical software. Graphical presentation of data. Introduction to statistical software, Introduction to the use of the computer room. Case studies of data set analysis using basic statistical methods. Generation of random numbers. Numerical problems encountered in regression. Introduction to R and SAS. Communication between different software and languages (R, SAS, etc...). Exercises: SAS and R programming exercises. Case studies with SPSS or JMP software.
Inline resources	Site Moodle: https://moodleucl.uclouvain.be/course/view.php?id=7551
Faculty or entity in charge	LSBA

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Statistics: General	STAT2M	4		
Master [120] in Agricultural Bioengineering	BIRA2M	4		
Master [120] in Mathematics	MATH2M	3		
Master [120] in Environmental Bioengineering	BIRE2M	4		
Master [120] in Statistics: Biostatistics	BSTA2M	4		
Master [120] in Biomedical Engineering	GBIO2M	4		
Approfondissement en statistique et sciences des données	APPSTAT	4		
Minor in Statistics, Actuarial Sciences and Data Sciences	MINSTAT	4		
Master [120] in Forests and Natural Areas Engineering	BIRF2M	4		
Master [120] in Chemistry and Bioindustries	BIRC2M	4		
Certificat d'université : Statistique et sciences des données (15/30 crédits)	STAT2FC	4		
Master [120] in Mathematical Engineering	MAP2M	4		
Master [120] in Data Science : Statistic	DATS2M	3		