








5.00 credits

30.0 h

Q1 and Q2

Teacher(s)	Ritter Christian ;
Language :	English
Place of the course	Louvain-la-Neuve
Prerequisites	<i>The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.</i>
Main themes	- Exploratory data analysis and rendering of data by tables and graphs - practical issues in data analysis (missing values, outliers, transformations) - review of common statistical analysis methods (regression, ANOVA, multivariate analysis; choice depends on selected projects) - communication with clients (project discussions, presentation of results, report writing) - professional and ethical conduct (analysis plan and cost estimation, mutual responsibilities of statistician and client, truthful representation, guidelines for ethical conduct) - practical problem solving in two real life cases coming from diverse application areas including medicine, psychology, engineering, agronomy and business ...
Learning outcomes	<p>At the end of this learning unit, the student is able to :</p> <p>The participants in this course will acquire knowledge and skill in three areas: - statistical analysis of real life data (from problem method), - communication (discussion with clients, oral and written presentation of results), - aspects of professionalism and ethical conduct (planning, cost, good practice) To accomplish these objectives, the participants will work on two real life consulting projects and their evaluation provides the main part of their grade.</p>
Evaluation methods	Evaluation based on the two real projects (statistical work, presentation, report writing)
Teaching methods	Mostly problem based learning Two real projects Reading of articles and sharing with the group Exercises in data visualization, presentation and report writing
Content	Introduction to statistical practice. Problem oriented approaches to statistical work on problems presented by clients from research, business, or public organizations. Important elements: <ul style="list-style-type: none"> - structuring projects with statistical content - exploratory data analysis using effective visualizations - challenges in statistical practice (missing values, outliers, transformations) - communication with clients (meetings, presentations, reporting) - professionalism (organization, planning, documenting, data privacy, intellectual property) The center of the course consists of two real life case studies from different subject areas including medicine, psychology, industry, agriculture, management, and marketing.
Inline resources	Moodle site.
Bibliography	Une série d'articles parus dans la littérature statistique récente est consacrée à cette problématique. Une liste détaillée sera remise aux étudiants.
Other infos	A collection of articles in statistics, data science and neighboring disciplines will be distributed for reading and discussion.
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	5	LSTAT2020 AND LSTAT2110 AND LSTAT2120 AND LSTAT2100	
Master [120] in Data Science Engineering	DATE2M	5		
Master [120] in Electro- mechanical Engineering	ELME2M	5		
Master [120] in Data Science: Information Technology	DATI2M	5		
Master [120] in Statistics: Biostatistics	BSTA2M	5		
Certificat d'université : Statistique et sciences des données (15/30 crédits)	STAT2FC	5		
Master [120] in Mathematical Engineering	MAP2M	5		
Master [120] in Data Science : Statistic	DATS2M	5		