LPSY1351
2013-2014

Statistics applied to psychology II

6.0 credits	45.0 h + 30.0 h	2q

Teacher(s) :	Van Pachterbeke Matthieu (compensates Govaerts Bernadette) ; Van Pachterbeke Matthieu (compensates Van Keilegom Ingrid) ; Govaerts Bernadette ; Van Keilegom Ingrid ; Lefèvre Nathalie (compensates Van Keilegom Ingrid) ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	- revision of basic statistical methods using case studies on computer - additional descriptive statistics : summary of data tables with more than two variables. Principal components analysis and factorial analysis - additional statistical inference: chi-square adjustment tests (one and two variables and normality test). Basic non-parametric tests. Power and calculation of sample sizes. Tests on 1 and 2 correlation coefficients. - variance analysis: variance analysis with one criterion: model, test statistics, hypothesis verification. Multiple comparison tests. Variance analysis with two criteria (fixed random and mixed model). Basic model for repeated measures. - single and multiple linear regression: single linear regression: model, least-square adjustment, inference on parameters and prediction. Multiple linear regression. General linear model. Validation of a regression model (residual analysis, multicollinearity, aberrant points etc.). - introduction to statistics software; use of the tools in practical problems. Power and calculation of sample sizes. Tests on 1 and 2 correlation coefficients. - variance analysis: variance analysis with one criterion: model, test statistics, hypothesis verification. Multiple comparison tests. Variance analysis with two criteria (fixed random and mixed model). Basic model for repeated measures. - single and multiple linear regression: single linear regression: model, least-square adjustment, inference on parameters and prediction. Multiple linear regression. General linear model. Validation of a regression model (residual analysis, multicollinearity, aberrant points etc.). - introduction to statistics software; use of the tools in practical problems.
Aims :	This course presents the main statistical analysis tools used in the field of psychology. By the end of the course students will be able to: - recognize the appropriate method to use for a given problem - use and apply each tool in various situations, particularly with the help of statistics software - use systematic procedures to resolve an open problem, from the choice of method, application, validation, to the interpretation of the results - understand and be able to explain the concepts and hypotheses underlying the methods used - have a good understanding of areas in which statistics in psychology can be applied and the situations they will experience. *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".*
Content :	This course presents the main statistical analysis tools which are of use to the psychologist and provides students with many different opportunities to use them, including the use of statistics software. The main topics are: - methodology of statistical analysis : formulation of the questions, preparation of data, exploratory analysis of data, selection of a method of analysis, validation of the hypotheses, interpretation of the results and production of a report. - descriptive statistics with more than two variables: summary of data tables with more than two variables. Principal component analysis and factorial analysis. - statistical inference : chi-square adjustment test (one and two variables and normality test). Basic non-parametric tests. Power and calculation of sample sizes. Tests on 1 and 2 correlation coefficients. - variance analysis : variance analysis with one criterion: model, test statistics, hypothesis verification. Multiple comparison tests. Variance analysis with two criteria (fixed random and mixed model). Basic model for repeated measures. - linear regression : single linear regression: model, least-square adjustment, inference on parameters and prediction. Multiple linear regression. General linear model. Validation of a regression model. Students are introduced to the use of statistics software and encouraged to apply all the statistical tools covered in this course and Statistics applied to psychology II. Methods : the course comprises lectures on case studies in the field of psychology and exercise sessions on computers designed to apply the different tools and concepts from the lectures. The exercises are led by assistants are are done in small groups.
Other infos :	Prerequisites : Statistics applied to psychology I. Assessment : Assessment comprises a written examination and a computer examination. Support : Reference text : "Méthodes statistiques en sciences humaines" by D.C. Howell Manual with transparencies from lectures and manual of computer exercises.

Cycle and year of study :	> Certificat universitaire en statistique > Preparatory year for Master in Psychology
Faculty or entity in charge:	PSP