

Faculty of Psychology and Education Sciences



PSP1277 Statistics applied to Psychology 2

[45h+30h exercises] 4.5 credits

This course is taught in the 2nd semester

Teacher(s): Bernadette Govaerts, Ingrid Van Keilegom
Language: French
Level: First cycle

Aims

This course presents the main statistical analysis tools used in the field of Psychology. At the end of the course the students will be able :

- to recognise which method is to be used for a given problem
- to use and to apply each tool in various situations, namely with the help of statistics software
- to take up systematic steps in order to resolve a problem, from the choice of the method, its application, its validation, up to the interpretation of the results obtained
- to understand and to be able to explain the concepts and hypotheses underlying the methods used
- to have a good view on the fields of application of statistics in Psychology and on the situations they will have to face.

Main themes

- Complements of descriptive statistics
- Summary of data tables with more than two variables. Principal components analysis and factorial analysis
- Complements of statistical inference: chi-square test of adjustment (one and two variables and normality test)
- Some non-parametric tests. Power and computing of samples sizes. Tests on 1 and 2 correlation coefficients
- Variance analysis: variance analysis with one criterion: model, test statistics, hypotheses verification. Multiple comparisons tests. Variance analysis with two criterions (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. Validation of a regression model (residual analysis, multicollinearity, research of outlying points...).
- Initiation to a statistics software and integration of the tools in real problems.

Content and teaching methods

This course presents the main tools for statistical analysis used in Psychology and gives to the students multiple opportunities to apply them in various situations, namely with the help of a statistics software.

The main fields tackled are:

- Methodology of the statistical analysis : working out of the questions, preparation of the data, exploratory analysis of the data, choice of an analysis method, validation of the hypotheses, interpretation of the results and writing 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 (complements): chi-square adjustment test (one and two variables and normality test). Main non-parametric tests. Power and computing of samples sizes. Tests on 1 and 2 correlation coefficients.
- Variance analysis: variance analysis with one criterion: model, test statistics, hypotheses verification. Multiple comparisons tests. Variance analysis with two criterions (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. Validation of a regression model.

The students will learn how to use a statistics software and will have to apply all the statistical tools considered in the course and in the course "Statistics applied to Psychology 1" with this software.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Statistics applied to Psychology 1

- one written exam, one exam on the statistics software and one project

Reference book of the course "Statistical methods in human sciences" by D.C. Howell.

Course outline with the presented transparencies and course outline with the computer exercises.

Other credits in programs

PSP12BA	Deuxième année de bachelier en sciences psychologiques et de (4.5 credits) l'éducation	Mandatory
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