

Applied Data Analysis (H000305)

Course size (nominal values; actual values may depend on programme)

Credits 6.0 Study time 180 h Contact hrs 40.0 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 2)	Dutch	lecture	30.0 h
		seminar: practical PC room classes	10.0 h

Lecturers in academic year 2018-2019

Loeys, Tom	PP01	lecturer-in-charge
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Offered in the following programmes in 2018-2019

	crdts	offering
Master of Science in Psychology (main subject Clinical Psychology)	6	A
Master of Science in Psychology (main subject Personnel Management and Industrial Psychology)	6	A
Master of Science in Psychology (main subject Teacher Education and Training)	6	A

Teaching languages

Dutch

Keywords

data-analysis
multivariate statistics

Position of the course

Applied data-analysis is a core course in the master (master in Clinical Psychology, master in Personnel Management and Industrial Psychology, and Master in Teacher Education and Training). The course is situated in Block 1 of the program, focusing on research methodology.

Contents

In this course the following topics are discussed:

- notions multivariate normal distribution;
- multivariate linear model: multivariate regression, MANOVA, MANCOVA and repeated measures ANOVA
- analysis of clustered and longitudinal data: mixed models
- confirmatory factor analysis and structural equation models.
- causality and mediation analysis

Initial competences

Research Methods I

Final competences

- 1 To define, to prepare and to carry out a research question.
- 2 To choose from a multitude of research approaches and techniques.
- 3 To design and to evaluate research.
- 4 To operationalise or to carry out a research plan.

5 To analyse and to interpret research results and to relate them to the original research question.

6 To report and to present research and research results.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture, seminar: practical PC room classes

Extra information on the teaching methods

Lectures on the nature and the application possibilities of the above mentioned methods of data-analysis. # Workshops and computer exercises in which students are given the opportunity to practice the newly acquired methods and techniques (under supervision and in subgroups)

Learning materials and price

All material is available through MINERVA

- Syllabus (slides).
- Datasets.
- Exercises.

Cost: 20 EUR

References

- Bolger, N., & Laurenceau, J.P. (2013). *Intensive Longitudinal Data. An introduction to diary and experience sampling research.* New York: Guilford Press.
- Hair, J.F., Anderson, R.E., Tatham, R.L., & Black, W.C. (2010). *Multivariate data-analysis (7th edition).* London: Prentice- Hall.
- Johnson, C. A., & Wichern, D. W. (2008). *Applied multivariate statistical analysis.* Pearson.
- Kline, R.B. (2005). *Principles and Practice of Structural Equation Modeling (second edition).* New York: Guilford Press.

Course content-related study coaching

- Support using MINERVA.
- By appointment.

Evaluation methods

end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period

Written examination with open questions, written examination with multiple choice questions, open book examination

Examination methods in case of periodic evaluation during the second examination period

Written examination with open questions, written examination with multiple choice questions, open book examination

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

not applicable

Extra information on the examination methods

The exam consists of 2 parts: (1) Written exam with multiple choice questions, interpretation of analysis results and statistical concepts, and (2) Computer exercises with open questions (given a real dataset and a number of research questions about the data, choose and apply the correct data-analytical methods and interpret the results, in order to answer the research questions). Both parts are open-book. Total score on the questions must be sufficiently high.

Calculation of the examination mark

Students who eschew one or more parts of the evaluation can no longer pass the course. Final scores will be reduced to the highest non-deliberative quotation (7/20) in case the final score is higher.