Multivariate Data Analysis (K000139)

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

Credits 5.0	Study time 150 h	Contact hrs	45.0 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 2)	Dutch	lecture	45.0 h

Lecturers in academic year 2018-2019

Van Rossem, Ronan	PS04	lecturer-in-charge

Offered in the following programmes in 2018-2019

	crdts	offering
Bachelor of Science in Sociology	5	A
Master of Science in Nursing and Midwifery	5	A
Linking Course Master of Science in Sociology	5	A
Preparatory Course Master of Science in Sociology	5	A

Teaching languages

Dutch

Keywords

Multiple regression analysis, variance analysis, correlation, data analysis, logistic regression, factor analysis.

Position of the course

This educational component aims to impart to students knowledge and skills about multivariate analysis techniques and their application within the field of sociology. As such, the course builds further on the component 'Applied Statistics'.
Multivariate data analysis is covered in educational skill B.1.4. The course module has a logical affinity with several scientific educational skills, i.e., B.2.1, B.2.2., B.2.3 and B.2.4. It also covers intellectual competencies such as B.3.1, B.3.2 and B.3.3, but critical reflection and analysis skills are central. Finally, as a contribution to B.4.1, consideration is given to the skill of reporting statistical analysis results with precision and clarity.

Contents

In this educational component, the main multivariate statistical analysis techniques used in sociology are discussed, including all of their assumptions. Also addressed is the link between the analysis and the sociologically relevant presentation of a research question. Both the statistical-mathematical aspects of these methods and their application to concrete sociological problems are covered. Thus, the course enters upon the following subjects, among other topics:

- statistical control
- multiple regression, including the inferences of the technique
- means of expanding the multiple regression model (nominal independent variables, the effects of interaction)
- variance and covariance analysis
- logistic regression
- factor analysis

Initial competences

Successful completion of the course module "Quantitative Analysis" (Ba2) or mastery of the skills in question by another means.

Final competences

1 - to have insight into the possibilities and limitations of advanced quantitative

      techniques of analysis (multiple regression, analysis of variance, ...) for social sciences research

2 - to understand complex analytic findings as reported in the sociological literature, to be able to correctly interpret, and critically evaluate, them.--- Klik om te editeren ---

3 --- Klik om te editeren ---- to be able to make a sound choice of an adequate, advanced technique of analysis.

4 - to be able to formulate and substantiate the limitations of a certain choice for a certain adequate, advanced technique of analysis.--- Klik om te editeren ---

5 - to be able to design in a sound manner and to be able to correctly carry out advanced statistical analyses on data from social sciences--- Klik om te editeren ---

6 --- Klik om te editeren ---- to be able to interpret and report on the findings of complex statistical analyses

7 --- Klik om te editeren ---
- to be able to critically reflect upon the choice and application of advanced techniques of analysis.

8 --- Klik om te editeren ---- to be able to interpret and critically assess published complex statistical analyses.

Conditions for credit contract

This course unit cannot be taken via a credit contract

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture

Learning materials and price

Texts and slides (Dutch) available through Minerva. Additional texts also available via Minerva
Personal notes.

Handbooks (Dutch)

Van Rossem, Ronan. *Multivariate Analyse voor de Sociale Wetenschappen: Wat Vooraf Komt*. Gent: Academia Press, 2007.
Van Rossem, Ronan. *Meervoudige Lineaire Regressie: Een eerste inleiding.* Gent: Academia Press, 2012.
 Van Rossem, Ronan. *Multivariate analyse voor de sociale wetenschappen: Logistische regressie*. (2de uitgave) Gent: Academia Press, 2010.
Van Rossem, Ronan. *PC vs. PAF. Een enigszins technische inleiding*. Gent: Academia Press, 2012.

References

Course content-related study coaching

Question and answer session in class or office hours

Evaluation methods

end-of-term evaluation and continuous assessment

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

Written examination

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

Written examination

Examination methods in case of permanent evaluation

Assignment

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Extra information on the examination methods

The written exam will test both theoretical and practical knowledge of the student.

The non-periodical assessment is based on 3 group tasks and 1 individual one.

Students cannot elude non-periodical assessment.

Calculation of the examination mark

The group tasks   count for 30% of the final score, the individual task for 50% and the written exam for 20%. Students need to pass for both the total and the individual task.