

Course Specifications

Valid in the academic year 2018-2019

Multivariate Data Analysis (K001257)

Course size (nominal values; actual values may depend on programme)
Credits 6.0 Study time 180 h Contact hrs 45.0 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 2)	English	self-reliant study activities	5.0 h
		lecture	20.0 h
		seminar: practical PC room classes	10.0 h
		microteaching	5.0 h

Lecturers in academic year 2018-2019

Demanet, Jannick PS04 lecturer-in-charge

Offered in the following programmes in 2018-2019

	crdts	offering
Bachelor of Science in Social Sciences (main subject Communication Studies)	6	A
Bachelor of Science in Social Sciences (main subject Political Sciences)	6	A
Bachelor of Science in Social Sciences (main subject Sociology)	6	A

Teaching languages

English

Keywords

Position of the course

Contents

This main objective of this methodological course is to introduce students to a number of multivariate techniques most commonly used in the social sciences. As such, this course builds on the knowledge and skills acquired in the educational components 'Statistics for the Social Sciences' (1BA) and 'Quantitative Research Methods' (2BA). While some attention is spent on the statistical-mathematical background of these techniques, there is a special emphasis on the practical application of the techniques, so that, upon completion of the course, the students have the competences to choose among the discussed techniques the correct one(s) to tackle complex social science research questions, to perform the chosen technique(s) adequately, and to interpret the results in a sound manner.

Specifically, the course deals with four groups of techniques: 1) Analyses of Variance (ANOVA) and CoVariance (ANCOVA), Multivariate Analysis of Variance (MANOVA) and CoVariance (MANCOVA); 2) Cluster analysis; 3) Path Models and Mediation Analysis; 4) Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM). For every method, a lecture where the method is introduced is followed by laboratory sessions, in which students are trained in hands-on exercises using statistical computer software (e.g., SPSS and AMOS).

Initial competences

Final competences

Upon completion of this course, students will have learned the following competencies

1. To explain in their own words the basic principles of each of the taught techniques in multivariate data analysis
2. To understand, interpret, and critically assess published results of advanced

statistical techniques in social science literature

3. To make a responsible choice between advanced research techniques to answer complex research questions
4. To discuss the limitations of advanced research techniques
5. To design and carry out adequately advanced statistical analyses on social science data
6. To interpret and report the results of complex statistical analyses properly

More generally, the course addresses the following program learning objectives:

- LO4: is able to apply social theories and concepts on a well-delineated, socially and scientifically relevant research topic that relates to the European Union or other (international) institutions.
- LO6: can formulate a valid scientific research question on a topic that relates to the social sciences.
- LO7: can identify, gather and critically process the relevant sources and literature on a specific social sciences research topic.
- LO8: knows how to set up a scientific and methodologically correct research design.
- LO9: possesses the methodological knowledge and skills of data selection and data processing that prevail within the domains of the social sciences.
- LO10: masters the techniques of good and accurate research reporting in oral and written form.
- LO11: has an investigative, problem-oriented and critical attitude towards social, political and media-related phenomena and scientific research results with regard thereof.
- LO12: recognises the multilayered and complex character of social, political and media-related facts and phenomena.
- LO13: reflects and evaluates his or her learning process and results critically.
- LO14: acts in a professional and responsible manner.
- LO15: is able to perform teamwork, he or she possesses good communicative skills and is solution-oriented.
- LO16: prioritises scientific integrity and honesty in his or her scientific research activities.

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, microteaching, self-reliant study activities, seminar: practical PC room classes

Extra information on the teaching methods

Didactic forms

- Interactive lectures with class discussions, peer-to-peer learning;
- E-learning;
- Micro-teaching;
- Seminar with guided PC-exercises;
- Guided self-study

Learning materials and price

Reader (to be communicated in the first class) + slides of theoretical lectures and lab sessions

References

Course content-related study coaching

Evaluation methods

continuous assessment

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

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

Examination methods in case of permanent evaluation

Assignment

Possibilities of retake in case of permanent evaluation

(Approved)

examination during the second examination period is possible

Extra information on the examination methods

Formative evaluation

The formative evaluation of this course is composed of two kinds of assignments. First, throughout the semester, students will work together in pairs on lab reports. Specifically, students will collaborate on three lab reports (I. ANCOVA, MANOVA, MANCOVA; II. Cluster Analysis; III. Path and mediation analysis). These lab reports comprise 50% of the final grade. Second, students will write an individual technical paper in which they apply a Structural Equation Model to a social science research question. This individual assignment comprises 50% of the final grade. Only this individual assignment can be retaken for the second examination period, lab reports can thus not be handed in for the second examination period, and their grades will be taken over from the first examination.

Summative evaluation

There is no exam for this course.

Calculation of the examination mark