Course Specifications
Valid as from the academic year 2019-2020

Multivariate Analysis (K001035)

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

<table>
<thead>
<tr>
<th>Credits</th>
<th>Study time</th>
<th>Contact hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.0</td>
<td>330 h</td>
<td>90.0 h</td>
</tr>
</tbody>
</table>

Course offerings and teaching methods in academic year 2019-2020

A (year) Dutch lecture 90.0 h

Lecturers in academic year 2019-2020

Van Rossem, Ronan PS04 lecturer-in-charge

Offered in the following programmes in 2019-2020

<table>
<thead>
<tr>
<th>programmes</th>
<th>credits</th>
<th>offering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Science in Sociology</td>
<td>11</td>
<td>A</td>
</tr>
<tr>
<td>Master of Science in Teaching in Social Sciences (main subject Criminological Sciences)</td>
<td>8</td>
<td>A</td>
</tr>
<tr>
<td>Master of Science in Criminological Sciences</td>
<td>8</td>
<td>A</td>
</tr>
</tbody>
</table>

Teaching languages

Dutch

Keywords

Factor analysis, cluster analysis, discriminant analysis, linear regression, logistic regression, analysis of variance

Position of the course

Multivariate Analysis fits in with course competences B.1.4. The course is in keeping with various scientific course competences, namely B.2.1., B.2.3 and B.2.4. Intellectual competences like B.3.2 and B.3.3 are practiced in this course, since critical reflection and analysing skills are central.

Finally attention is paid to functioning in a team and to correctly and clearly reporting the results of statistical analysis, which contributes to B.4.1., B.4.3. and B.4.4.

Contents

In this course the most important advanced statistical analysis techniques, used in sociology, are covered, including a discussion of all assumptions. Attention is paid to the link between analysis and sociologically relevant problems. The statistical-mathematical aspects of these methods as well as their use in concrete sociological problems form part of this course. Amongst others, the following topics will be discussed:

- statistical control
- multiple regression
- extensions of the multiple regression model (nominal independent variabelen, interaction-effects)
- analysis of variance.
- logistic regression
- principal component and factor analysis
- discriminant analysis
- cluster analysis
- generalized linear model

The course consists of 4 modules:

1 Introduction and preparatory topics
2 General linear model
3 Generalized linear model
4 Multivariate techniques

(Approved)
Initial competences
The students should have successfully taken the courses ‘Sociological research II’ and ‘Quantitative Analysis’ (Ba2) or have gathered the competences, intended in these courses, in some other way. Basic knowledge of algebra and function research is a prerequisite.

Final competences
1. Have insight in the possibilities and limitations of advanced quantitative analysis techniques (logistic regression, principal components and factor analysis, discriminant analysis, cluster analysis, ...) in social-scientific research.

2. Understand, interpret and critically evaluate complex reported analysis results in sociological literature.
3. Make a well-considered choice for a suitable advanced analysis technique.
4. Articulate and substantiate the limitations of a choice for a certain advanced analysis technique.
5. Soundly design and correctly perform advanced statistical analyses on social-scientific data.
6. Interpret and report results of complex statistical analyses.
7. Critically reflect upon the choice for and use of advanced analysis techniques.

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
Group work, lecture, seminar: practical PC room classes.

Learning materials and price
Additional texts and slides are made available through Minerva.

Own notes

References
From the series Quantitative Applications in the Social Sciences, published by Sage (Newbury Park, CA):
Pampel, Fred C. Logistic regression: a primer (# 132)
Dunteman, George H. & Ho, Moon-Ho R. An introduction to generalized linear models (#145)
Kim, Jae-On & Mueller, Charles W. Introduction to factor analysis: What it is and how to do it (#13)
Klecka, William R. Discriminant analysis (#19)
Aldenderfer, Mark S. & Blashfield, Roger K. Cluster analysis (#44)

Course content-related study coaching
Interactive coaching through Minerva (forums, FAQ, e-mail). Questions in class or during office hours.
Evaluation methods
  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
  Written examination, 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
  Continuous evaluation:

  4 group tasks
  1 individual task
  4 written tests

Calculation of the examination mark
  The group tasks count for 30% of the final score, the individual task for 50% and the tests for 20%.

Facilities for Working Students
  None