

Multivariate Data Analysis

SOM Research School
Faculty of Economics and Business
University of Groningen; The Netherlands

and

NAKE

September 2010 – March 2011

Course information

Lecturer

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Learning objectives

Students who have successfully finished this course should be able to apply multivariate analysis methods at an advanced level in scientific research within business and economics. To this end, they should have:

- Solid, state-of-the-art knowledge of potential (mis-)application of several multivariate analysis methods;
- Thorough understanding of the methodological underpinnings of the methods;

- Practical skills to perform the analyses;
- General overview and appreciation of a broad range of multivariate analysis methods.

Target group

This course is specifically designed for students in a Research Master, MPhil, or PhD program in any business or economics discipline. In addition, the course might very well be relevant for Master or PhD students in another social science discipline.

Prerequisites

It will be assumed that students already have extensive knowledge of univariate and bivariate statistics.

Credits

The course consists of two parts: 7 erts at the graduate school SOM of the University of Groningen and 3 erts at the national network NAKE (see: www.NAKE.nl). Although the two parts nicely fit together, it is possible to take only one or the other part. In addition, one could select any number of sessions in Groningen (1 erts each) and/or the block within NAKE (3 erts). Finally, students from universities other than the University of Groningen may very well combine the NAKE part of this course with another introductory course on multivariate research methods.

Structure and time schedule

The first part (7 erts) has seven sessions to be held in Groningen. These sessions will be held on Friday, from 9.30 to 16.00. The second part (3 erts) consists of 5 sessions of two hours in block 4 of the NAKE program. These sessions will be lectured in Utrecht. For further details see Table 1.

If you are interested in participation in this course please send an email to SOM's secretary Astrid Beerta (a.beerta@rug.nl) for registering at the first part in Groningen. And for the second part at NAKE, please register via the website of NAKE (www.nake.nl).

Table 1. Course schedule.

Within SOM (Groningen)				
	Dates	Time	Room	Ects
Semester 1	September 10, October 1 & 22, November 12, December 3, January 7 and 28, 2010	9.30-16.00	tba	7
<ul style="list-style-type: none"> • Multiple regression and Analysis of variance models • Models for discrete dependent variables (Discriminant analysis, Logistic regr., Logit) • Roles of third variables (mediation and moderation) • Hierarchical linear models • Factor analysis and Principal components analysis • Structural equations models (LISREL) • Cluster analysis 				
Within NAKE (Utrecht)				
Block 4	February 4, 11, 18, 25 and March 4, 2011	13.15-15.00	Tba	3
<ul style="list-style-type: none"> • Latent class analysis • Conjoint analysis 				

Grading

Grading will be done by means of assignments, without a final exam. There will be one assignment per session in Groningen, and there will be two assignments for the block within NAKE. Hence, in total the course contains nine assignments. The grade for the entire course is the weighted (by ects) average of the grades obtained.

The assignments have to be done individually or in a group of two students. All assignments will include the analysis of actual data. The use of a student's own data set is allowed. Permission to use one's own data set has to be requested beforehand, and of course the data should be suitable for that particular analysis method.

Course literature

Required reading:

- Lattin, Carroll, and Green (2003), *Analyzing Multivariate Data*. ISBN: 0-534-34974-9.

This book covers several topics discussed in the course; in particular for the sessions in Groningen. It nicely matches the required mix of statistical detail and directions for application.

- Hair, Black, Babin, Anderson, and Tatham (2006), *Multivariate Data Analysis*, Sixth Edition.

This is a more basic textbook and provides fewer details on statistical methodology compared with the book by Lattin, Carroll, and Green (2003), but much more information useful when applying the various methods. This might be a welcome additional reading for some students.

- Journal articles and other material

Several topics, e.g. mediation analysis, hierarchical linear models, and latent class analysis, are not discussed (in detail) in the book mentioned above. Additional study material will be provided throughout the course.