Multivariate Data Analysis for Business and Management Research
Course Manual
Academic year 2020- 2021
<table>
<thead>
<tr>
<th><strong>Course title</strong></th>
<th>Multivariate Data Analysis for Business and Management Research</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coordinator(s)</strong></td>
<td>prof. dr. H. van Herk</td>
</tr>
<tr>
<td><strong>Lecturer(s)</strong></td>
<td>prof. dr. H. van Herk</td>
</tr>
<tr>
<td><strong>Study period</strong></td>
<td>February 2021 – March 2021 (Period 4)</td>
</tr>
<tr>
<td><strong>ECTS</strong></td>
<td>6 ECTS</td>
</tr>
<tr>
<td><strong>Tuition</strong></td>
<td>€1250</td>
</tr>
<tr>
<td></td>
<td>20% discount on early bird registration: €1000</td>
</tr>
</tbody>
</table>

**Course Objective**  
Upon successful completion of the course, students will:
- Be able to evaluate the quality of quantitative data; including dealing with missing data and outliers
- Have insight into the strengths and limitations of various multivariate analysis techniques, such as multiple regression, PCA, FA, structural equation modeling and multilevel modeling
- Be able to perform multivariate analysis using the R-package
- Be able to interpret output of multivariate analyses
- Have started developing their skills of communicating about research methods in writing

**Course content**  
This course will emphasize understanding, implementation, and interpretation of multivariate statistical methods. The course will involve both lecture and lab work. First, we discuss how to analyze and deal with missing data. Second, the course will focus on multivariate techniques such as analysis of (co)variance and regression analysis including moderation and mediation. Third, you will learn some more advanced techniques using latent variables and apply confirmatory factor analysis to multi-item scales. You will be introduced to structural equation modeling (SEM). You will learn to analyze SEM models and assess their fit. Lastly, multi-level analysis is learned. This course prepares the student for analyzing datasets using the freely available programming language R. R is a platform for which many scholars write packages. The basis enables you to manipulate data, clean data, and test hypotheses. The packages enable you to use advanced methods such as structural equation modeling. You will learn how to read various datasets into R, how to create and change variables, and how to conduct manipulations such as recoding data.

**Teaching Methods**  
Combined lecture - tutorial sessions
Assessment

30% Midterm
70% Final assignment

Entry Requirements
Methods and statistics courses at the BSc level in Business Administration or Economics

Literature
Selected articles

Target Audience
This course is only available for research master and PhD students.

Recommended background knowledge
Basic programming skills in R, knowledge of statistics and research methods at BSc level.
All participating students are expected to be proficient in English.