



## ONLINE Ljubljana Doctoral Summer School 2021

### Multilevel Analysis (ECTS: 4)

12 – 16 July

9.00 – 13.00 (CEST, Ljubljana)

Course leader:

[de Jong Ad](#), Copenhagen Business School, Denmark

#### Aims of the course:

This course is meant for early-career researchers and doctoral students, and graduate students in Management, Marketing, Psychology, and related sciences, with an interest in latent variable and multi-level modelling analysis techniques. Familiarity with correlation and linear regression analysis is recommended. This workshop deals with multi-level (nested) data and offers hands-on software training.

Key OBJECTIVES are:

- To familiarize participants with the key characteristics of nested data.
- To enable participants to critically examine nested data with specific software and draw meaningful conclusions.
- To enable participants to apply (where suitable) multilevel analysis to their own research.
- To provide participants with insights into how to publish multilevel research in top-tier academic journals.

The objectives will be achieved when actively participating during the workshop, by engaging with the literature and by doing the presentations and the assignments.

#### Course syllabus:

The participants will make use of several academic journal articles (see further below under the list of readings).


**Day One**

| Time          | Activities  |  |
|---------------|---|--|
| 9.00 – 9.30   | Getting acquainted  | Participants + Ad de Jong: interactive discussion  |
| 9.30 – 11.00  | Preparing of Multilevel Analysis: Multiple Regression Analysis                          | Ad de Jong teaching                                |
| 11.00 – 13.00 | Applications of Multilevel analysis in Management, Marketing and Psychological Research | Participant presentations + interactive discussion |

**Day Two**

| Time         | Activities   |                     |
|--------------|--|---------------------|
| 9.00 – 13.00 | Introduction Multilevel analysis<br>-General introduction to multilevel analysis<br>-The random intercept model and random slope model<br>-Model selection, testing, explained variance<br><br>Special topics:<br>-Multilevel analysis and data-aggregation<br>-Multilevel analysis group-mean centering vs. grandmean | Ad de Jong teaching |

**Day Three**

| Time          | Activities                     |   |
|---------------|--------------------------------|---|
| 9.00 – 10.00  | Introduction to MLwiN software | Ad de Jong (tutorial)                                     |
| 10.00 – 13.00 | Computer training MLwiN        | Ad de Jong + participants (tutorial, in-class assignment) |

**Day Four**

| Time          | Activities  |  |
|---------------|---|--|
| 9.00 - 10.30  | Applications of Multilevel analysis in Management and Marketing, and Psychological Research: Special Topics   | Participant presentations + interactive discussion |
| 10.30 – 13.00 | Multilevel analysis: Special topics<br>-Multilevel path modeling<br>-Endogeneity in multilevel analysis<br>-Multilevel analysis for longitudinal data<br>-Multilevel analysis for multivariate data | Ad de Jong (teaching)                              |



## Day Five

| Time          | Activities   |   |
|---------------|--|---|
| 9.00 - 10.30  | Multilevel path modeling<br>-Two-level path analysis with a continuous dependent variable<br>-Two-level path analysis with a categorical dependent variable<br>-Two-level path analysis with continuous dependent variables and random slopes<br>-Different types of path models | Ad de Jong  |
| 10.30 –12.00  | Computer training Mplus  | Ad de Jong + participants (tutorial, in-class assignment) |
| 12.30 – 13.00 | Drawing conclusions  | Ad de Jong  |

**Software:**

We will be making use of **MLwiN software** and **Mplus software**.

As for **MLwiN**, you can easily download a 30-day free trial version from the following website: <http://www.bristol.ac.uk/cmm/software/mlwin/download/>

Then, select: *MLwiN trial version - expires after 30 days* (msi, 25.6 mb)

As for **Mplus** software, you can easily download a demo-version from the following website: <https://www.statmodel.com/demo.shtml>

**List of readings:**

- Fu, Frank Q., Keith A. Richards, Douglas E. Hughes, and Eli Jones (2010), "Motivating Salespeople to Sell New Products: The Relative Influence of Attitudes, Subjective Norms, and Self-Efficacy," *Journal of Marketing*, 74 (6), pp. 61-76.
- de Jong, A., K. de Ruyter, and J. Lemmink (2004), "Antecedents and Consequences of the Service Climate in Boundary-Spanning Self-Managing Service Teams," *Journal of Marketing*, 68 (2), pp. 18-35.
- Hofmann, D.A. (1997). An Overview of the Logic and Rationale of Hierarchical Linear Models. *Journal of Management* 23(6), pp.723-744.
- Kidwell, R.E., and Mossholder, K.W. (1997). Cohesiveness and Organizational Citizenship Behavior: A Multilevel Analysis Using Work Groups and Individuals. *Journal of Management* 23(6), pp. 775-793.
- Rasbash, J. et al (2015). A User's guide to MLwiN (Version 2.33). University of Bristol. Chapter 1: Introducing Multilevel models, pp. 1-8.
- Schmitz, Christian, You-Cheong Lee, & Gary L. Lilien (2014). Cross-Selling Performance in Complex Selling Contexts: An Examination of Supervisory- and Compensation-Based Controls. *Journal of Marketing* 78 (May), 1– 19.
- Wieseke, Jan, Nick Lee, Amanda J. Broderick, Jeremy F. Dawson, and Rolf Van Dick (2008). Multilevel Analyses in Marketing Research: Differentiating Analytical



Outcomes. *Journal of Marketing Theory and Practice*, vol. 16, no. 4 (fall 2008), pp. 321–339.

- Snijders, T.A.B (2003). Multilevel Analysis. In: Lewis-Beck, M., Bryman A.E., and Liao T.F. (eds.) *The Sage Encyclopedia of Social Science Research Methods* (Vol. II), Sage 2003, pp. 673-677.
- Snijders, T.A.B., and Bosker R. (2012). *Multilevel Analysis*. London: Sage. Chapter 2: pp.6-13.
- Spencer (2008), "Models for Value-added Investigations of Teaching Styles Data," *Journal of Data Science*, 6, pp. 33-51.

### ***Additional Literature (you don't necessarily need to read this for the course)***

- Steenkamp, J-B.E.M., Ter Hofstede, F., and Wedel, M. (1999). A Cross-National Investigation into the Individual and National Cultural Antecedents of Consumer Innovativeness. *Journal of Marketing* 63(2), pp. 55-69.
- Lam, Son K., Florian Kraus, & Michael Ahearne (2010) The Diffusion of Market Orientation Throughout the Organization: A Social Learning Theory Perspective. *Journal of Marketing*, Vol. 74 (61 September 2010), 61–79.

### **Instructions for presentations:**

Each participant is assigned to present one of the following articles, either on Day One or on Day Four. Presentation is max. 10 minutes. The aim is to present the study with focus on the METHODOLOGICAL aspects.

#### Articles for student presentations DAY ONE:

- Kidwell, R.E., and Mossholder, K.W. (1997). Cohesiveness and Organizational Citizenship Behavior: A Multilevel Analysis Using Work Groups and Individuals. *Journal of Management* 23(6), pp. 775-793.
- Schmitz, Christian, You-Cheong Lee, & Gary L. Lilien (2014). Cross-Selling Performance in Complex Selling Contexts: An Examination of Supervisory- and Compensation-Based Controls. *Journal of Marketing* 78 (May), 1– 19.
- Wieseke, Jan, Nick Lee, Amanda J. Broderick, Jeremy F. Dawson, and Rolf Van Dick (2008). Multilevel Analyses in Marketing Research: Differentiating Analytical Outcomes. *Journal of Marketing Theory and Practice*, vol. 16, no. 4 (fall 2008), pp. 321–339.

#### Articles for student presentations DAY FOUR:

- De Jong, A., K. de Ruyter, and J. Lemmink (2004), "Antecedents and Consequences of the Service Climate in Boundary-Spanning Self-Managing Service Teams," *Journal of Marketing*, 68 (2), pp. 18-35.
- Fu, Frank Q., Keith A. Richards, Douglas E. Hughes, and Eli Jones (2010), "Motivating Salespeople to Sell New Products: The Relative Influence of Attitudes, Subjective Norms, and Self-Efficacy," *Journal of Marketing*, 74 (6), pp. 61-76.
- Spencer (2008), "Models for Value-added Investigations of Teaching Styles Data," *Journal of Data Science*, 6, pp. 33-51.

**Course leader's biographical note:**

*Prof. Dr. Ad ("Addy") de Jong is a Professor of Marketing at Copenhagen Business School, Department of Marketing, Frederiksberg, DK. His research focuses on selling innovations; service marketing, frontline marketing, sales and service teams; multivariate analysis methods and techniques, including multilevel regression analysis, multilevel growth modelling, and PLS. He serves on the editorial review boards of the Journal of Service Research, Industrial Marketing Management, and the Journal of Personal Selling & Sales Management and has published in journals, such as Management Science, the Journal of Marketing, the Journal of Management, the Journal of Retailing, the International Journal of Research in Marketing, the Journal of the Academy of Marketing Science, the Journal of Service Research, Industrial Marketing Management, the Journal of Product Innovation Management, the Journal of Management Studies, the British Journal of Management, Decision Sciences, Marketing Letters, Journal of Personal Selling & Sales Management.*