

Title: Workshop: Advanced Topics in Structural Equation Modeling

Instructor: Martina Bader

Abstract:

Structural Equation Modeling (SEM) is a powerful statistical technique that is widely used by researchers in the social, behavioral, and educational sciences. SEM can be regarded as a union of factor and regression analysis. The prime focus of SEM typically lies on theoretical constructs, represented by latent variables, and the relation among these theoretical constructs as expressed through regression coefficients. As such, SEM is a very general and convenient framework that encompasses many traditional multivariate procedures as special cases. This workshop focuses on more advanced topics in SEM. After a short recap of the basics of SEM (such as model identification and estimation, evaluation of goodness-of-fit), we cover the following topics:

- practical issues (missing data, non-normal data)
- power analyses for SEM
- measurement invariance testing across categorical and continuous variables (multi-group models and local structural equation models)

In addition to a theoretical description of SEM, the workshop also focuses on the practical implementation and interpretation of corresponding analyses in the statistical environment R using the lavaan package.

Requirements:

For the workshop, you need

- A computer with a working installation of R and a front-end such as RStudio
- Some working knowledge of R (e.g., how to import data sets into R, how to create variables)
- Basic knowledge of SEM and the R package lavaan

Ideally, you have already installed the R packages

- lavaan
- semPower
- sirt

Assignment: Active participation

Credits: 1 workshop day