STRUCTURAL EQUATION MODELING: THEORY AND APPLICATION

During the spring of 2014, Örebro University in Sweden will offer a series of workshops on Structural Equation Modeling (SEM) using Mplus. SEM refers to a group of multidisciplinary methods for studying causal relations. SEM is increasingly used across different disciplines, with currently more than 85.000 international publications in the fields of Economics, Sociology, Medical Sciences, and Psychology (according to Pubmed).

Content of the workshops

The workshops are multidisciplinary and are highly relevant for those interested in improving their knowledge and skills on a wide range of advanced methodology. The five workshops review the theoretical background and application of data analysis with SEM techniques. Each workshop day will be composed of two integral parts: Theory and Application (using Mplus 7.x software).
During the first part of each workshop, a survey will be provided of the latest theoretical and statistical concepts and assumptions of SEM framework. The workshops will deal with recent developments involving model building, model comparison, model specification and identification for several modeling techniques (e.g., path analysis, confirmatory factor analysis, structural equation models, multiple group modeling). The conceptual overviews of each analytical technique will be illustrated by relevant examples.

During the second part of each workshop, the students will learn how to use Mplus software to specify and test the models discussed theoretically. Students are required to complete practice assignments to enhance their understanding of the statistical techniques, and develop skills of independently applying analytical procedures.

The following workshops will be held on the following days (Please note that the dates and content are subject to change):

SEM Workshop I: Introduction to Structural Equation Modeling (6th of March 2014)

The aim of this workshop is to develop students' basic understanding of the underlying principles of Structural Equation Modeling (SEM). Additionally, students will acquire in-depth knowledge of the conceptual basis of SEM and causal assumptions underlying different models. They will be introduced to Mplus and learn how to use the basic functions of the program.

SEM Workshop II: Path analysis and Model Testing (7th of March 2014)

During this workshop, students acquire the latest and most recent techniques for model testing and path analysis. Students will gain knowledge of the ways in which one should formulate models, test alternative models, and evaluate models with regard to statistical and practical significance. Particular attention will be aid to learning how to use Mplus and interpret the output when testing different

models.

SEM workshop III: Methods involving Latent Variables (10th of March 2014)

Students will learn a sound and detailed understanding of the use of latent variables in Structural Equation Modeling. New developments in SEM when using latent variables will be discussed according to a wide range of examples. The program Mplus will be used to estimate and interpret models involving latent variables.

SEM workshop IV: Moderation Analysis and Interaction Effects (11th of March 2014)

During this workshop, students will acquire a basic understanding of moderation analyses. Furthermore, the students will learn the most recent developments on moderation analysis and interaction effects. Mplus software will be used to estimate and interpret interaction effects and draw conclusions from the analysis with regard to moderation.

SEM workshop V: Mediation analysis and indirect effects (12th of March 2014)

The last workshops deals with the use of SEM to model indirect effects and interpret mediation. Students will learn the basic conceptual basis underlying mediation analysis as well as more recent advancements on this technique. Based on recent international publications on mediation and indirect effects in Mplus, students will learn how to use Mplus 7.x to examine research questions involving mediation.

Requirements:

Students applying for this course need to have a sound understanding of regression analysis and Exploratory Factor Analysis, being able to (a) understand all underlying principles and statistics and (b) be able to apply these in SPSS. They need to bring their own laptop with SPSS and the SEM program Mplus 7.x or higher.

Applying for the course

The course is free of charge and will be taught in English. For those of you interested to apply, please contact the course administrator, Kristina Lexell: kristina.lexell@oru.se