Fundamentals of Structural Equation Modelling

Are you interested to learn fundamentals of Structural Equation Modelling?
Want to learn effective ways to research with Structural Equation Modelling?

Introduction

Structural equation modelling (SEM) is a very general statistical technique, as it has regression analysis, path analysis, and factor analysis as special cases. It is also possible to combine the advantages of these techniques, which makes SEM one of the most general and most flexible techniques available to researchers. As a result, SEM presently is also one of the most widely used techniques in the social and behavioural sciences. In this course, you will be introduced to SEM and its applications, which can be useful in analysing your data as well as in reading and understanding scientific articles in your field in which SEM is applied. The SEM course can be considered as the continuation and completion of the other research master classes on multivariate statistics.

Program Objectives

This program aims to
- Obtain a thorough knowledge of structural equation modelling (SEM) and its special cases of path analysis and factor analysis. Understanding of the statistical theory on which SEM is based.
- Understand the common applications of SEM to cross-sectional, continuous, multivariate normally distributed data; Participants also learn how to apply SEM to multigroup data, longitudinal data, non-normal data, and (other) discrete data.

Learning Outcomes

After completing this program, participants should be able to:
- Apply SEM to various sets of data with various characteristics. Substantively, participants learn how to apply SEM to substantive research questions in the behavioural and social sciences, specifically in child development and education.
- Apply SEM and how to interpret SEM results, but they also learn the pitfalls of SEM, and to question the application and results of SEM.

Who Should Attend?

Junior and senior academicians and anyone who wish to enhance their research skills

Methodology

Case studies, forum discussion, role-play, presentations, gamification

Program Outline

Time	Day One
9.00am– 10.30am	**Fundamentals of SEM** The course starts with a separate treatment of path analysis and factor analysis of covariance structures. Subsequently, the full structural equation model with latent variables is treated in depth. This includes modelling mean structures and models for multiple group data and longitudinal data. Special attention is given to the topic of measurement invariance.
10.30am-11.00am	**Break and Networking**
11.00am-1.00pm	**SEM and Model** The participant would learn the concept of Model specification, identification, estimation, the goodness of fit, and interpretation will be discussed.
1.00pm-2.00pm	**Lunch Break and Networking**
2.00pm-3.30pm	**Sampling and Hypothesis testing** In this module, sample size considerations, effect size indices, and statistical power are discussed for testing hypotheses of the overall goodness of fit, as well as for testing hypotheses regarding specific model parameters.
3.30pm-4.00pm	**Break and Networking**
4.00pm-5.00pm	**Handling Missing Data** In this module, the participant would learn how to prepare their data,

	how to handle missing data, and how to use a computer program for structural equation modelling (Open Mx).

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