

Department of Management
Amrita Viswa Vidyapeetham, Bangalore

Structural Equation Modeling

Course Plan PhD: [July-September 2016]

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Description

This is an advance level course in quantitative methods. The course is intended to familiarize the students with the widely used data modelling technique of “structural equation modelling” (SEM). The course will give an exposure to basic theory and application of SEM.

Pedagogy

The topics will be covered by lecture sessions along with hands on practical training using databases. SEM implementation will carried out on R platform.

Learning Objectives

At the end of this course students will be able to:

1. Develop empirical research models in SEM Framework
2. Implement SEM within R ecosystem.
3. Evaluate SEM model estimates and modify it.

Course Outline

1. Introduction and Overview

Key Advances in the History of Structural Equation Modeling, Graphical Representation of Structural Equation Models using Path Diagrams, Latent Variables in Structural Equation Modeling, The Causal Foundations of Structural Equation Modeling.

2. Fundamentals

Assumptions, Model Specification, Identification and Estimation of Structural Equation Models, Power Analysis for Tests of Structural Equation Models, Categorical Data in the Structural Equation Modeling Framework, Model Fit and Model Selection and Model Modification in Structural Equation Modeling

3. Implementation

Preparing Data for Structural Equation Modeling, Structural Equation Modeling with Missing Data, Bootstrapping Standard Errors and Data–Model Fit Statistics

Structural Equation Modeling with Computer Softwares: Snapshots of LISREL , EQS, Amos, and Mplus, Structural Equation Modeling in R with the sem, lavaan and OpenMx Packages

4. Basic Applications

Confirmatory Factor Analysis, Investigating Measurement Invariance Using Confirmatory Factor Analysis, Mediation/Indirect Effects in Structural Equation Modeling, Structural Equation Models of Latent Interaction

5. Advanced Application

Multilevel Structural Equation Modeling, An Overview of Growth Mixture Modeling, Latent Curve Modeling of Longitudinal Growth Data

Text book recommended

Kline, Rex B (2011). Principles and practice of structural equation modelling, The Guilford Press, ISBN 978-1-60623-877-6

Other Reading Material

Beaujean A. Alexander (2014), “Latent Variable Modeling Using R:A Step-by-Step Guide”, Routledge, ISBN: 978-1-84872-698-7

Rick H. Hoyle (Eds) (2012), “Handbook of Structural Equation Modeling”, The Guilford Press, ISBN 978-1-60623-077-0

Skrondal Anders and Rabe-Hesketh Sophia(2004), “Generalized latent variable modeling : multilevel, longitudinal, and structural equation models”, Chapman & Hall, ISBN 1-58488-000-7

Grading Pattern

Tests – 40 %

Term paper - 60 %