Structural equation modeling (SEM) is a technique to test hypothesized models with observed and latent variables. It encompasses many techniques, such as linear regression, multivariate regression, and factor analysis as special cases. The course provides a practical introduction to structural equation modeling using the R statistical platform. By taking this module, participants will be able to build models that are characterized by multiple pathways.

**Course Outline**

- Introduction to structural equation modeling
- Special cases of SEM: Regression, path model, confirmatory factor analysis
- Model specification
- Model evaluation
- Using the lavaan package in R
- Testing measurement invariance with multiple group analysis
- Latent growth model
- Testing mediation effect with bootstrapping
- Testing moderation effect with latent variables
- Handling missing data
- Handling non-normal data with robust statistics (subject to availability of time)
- Handling binary and ordinal variables (subject to availability of time)

**Who Should Attend**

This course is designed for individuals with knowledge in regression and would like to extend it to handle more complex research questions involving observed and latent variables.

**Prerequisites**

Participants are expected to have basic knowledge in regression analysis. Basic knowledge in R is useful but not necessary.

**Enquiries**

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**Faculty Member**

Dr. Mike Cheung is Associate Professor in the Department of Psychology at the National University of Singapore with research expertise in the areas of meta-analysis, structural equation modeling (SEM), and multilevel modeling. He has published more than 40 papers in international journals and his new book on meta-analysis will be published in 2015 by Wiley. He is on the editorial board of *Psychological Methods*, and *Research Synthesis Method*. He is also an associate editor for *Frontiers in Psychology* (Quantitative Psychology and Measurement), and a special issue editor for *Research Synthesis Methods*. In 2012, he received the Award for Excellent Researcher from the Faculty of Arts and Social Sciences, NUS.