

## ADVANCED LONGITUDINAL MODELING WITH LATENT VARIABLES

**Location:** CIQSS, 3535 Queen-Mary Road, suite 420, Montreal  
**Dates:** 28 - 29 November 2007

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### COURSE OBJECTIVES

The objective of this short workshop course is to expose participants to modeling group and individual-level trajectories using a latent variable framework. Specific to this course will be the discussion of flexibility in modeling experience over time and in context. Issues of individual versus shared patterns of “growth” will be discussed, along with strategies to model timing. Contextual or “multilevel” models will also be discussed in terms of capturing individual experiences over time and in place. All models will be discussed in terms of theory, model fit tests and appropriateness for research questions in the social sciences. All examples and exercises will use the Duke Established Populations for Epidemiologic Studies of the Elderly (EPESE) data set and *Mplus* software.

### COURSE CONTENT

- Short Introduction of Growth Models in SEM – this portion of the workshop will cover a short review of structural equation models (SEM) and how trajectory models may be estimated in this framework.
- Modeling Heterogeneity and Timing – this portion of the workshop will examine theoretical and methodological indications of individual vs. group trajectories. In addition, multiple strategies in modeling timing will be discussed.
- Modeling Context– finally, the issue of multilevel (contextual) models will be introduced in terms of capturing experience over time and in place. Modeling strategies for both cross-sectional data and longitudinal data will be discussed.

### TRAINER AND COURSE INFORMATION

This training session will be under the responsibility of Miles Taylor, Postdoctoral Scholar, Carolina Population Center, UNC-Chapel Hill. The workshop will be conducted in English. The morning sessions will consist of lecture based on theory and the afternoons will be used to cover computer exercises and specific questions. All workshops are given using *Mplus*.

## **SCHEDULE**

- Short Introduction to Concepts in Trajectory Analysis and “Growth”
- Discussion of the Strengths and Weaknesses of individual versus group trajectories
- Introduction to Categorical Latent Variables, Latent Class Analysis (LCA) of Trajectories and Growth Mixture Models (GMM)
- Workshop: Modeling flexibility in growth, including individual and group experience
- Modeling Timing in Growth Models including Survival Analysis in SEM
- Discussion of other “hybrid” trajectory models
- Modeling Context in Cross-Sectional and Longitudinal Data in SEM
- Workshop: Modeling timing and context in trajectory models

## **SUGGESTED TEXTS**

*Latent Curve Models: A Structural Equation Perspective*. 2005. Kenneth A. Bollen and Patrick J. Curran. Wiley Series in Probability and Statistics.

*Multilevel Modeling (Quantitative Applications in the Social Sciences)*. 2004. Douglas A. Luke. Sage “Green Book” Series

Supplemental Readings and Other Course Materials Will Be Provided

## **PARTICIPANTS PROFILE**

The course is open to graduate students, postdoctoral fellows, faculty, and researchers. Participants should have backgrounds in multivariate regression models, longitudinal analysis using secondary data, and prior introduction to structural equation models. The course is limited to 15 participants who will be selected on the basis of the course’s relevance to their research or teaching. The application deadline for the workshop is November 13, 2007. The results will be announced on November 14, 2007.