LATENT GROWTH CURVE MODELS (LGCM):
A STRUCTURAL EQUATION APPROACH

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Latent Curve Models (LCMs) are an increasingly popular approach to
analyze longitudinal data. Though the models go by many names (e.g.,
growth curve modeling, latent growth models, latent trajectory models), they
all refer to statistical models for longitudinal data that allow each individual
in the sample to have distinct over-time trajectories of change. These
patterns of change are summarized in relatively few parameters. The
parameters in turn are modeled as functions of other variables.

With the growing availability of longitudinal or panel data, social and
behavioral science applications of and interests in LCM have increased. The
formulations and estimation of these models have proceeded in several
ways. In the workshop we will analyze the LCMs from the perspective of
structural equation modeling with latent variables. Although I will present
simple regression based procedures that are helpful in the early stages of
LCM, most of our discussion will make use of Structural Equation Models
(SEMs).

As per the course description, I assume that participants have
background in SEMs prior to the course, including familiarity with at least
one SEM package. The computer lab in which we will work has several
major SEM software packages. Participants are free to use any of these
SEM packages. The major topics of the course are: an overview of growth
curve models & a review of SEMs, unconditional latent curve models
(LCMs), nonlinear LCMs, conditional LCMs, the analysis of groups,
multivariate LCMs, and latent variable LCMs. Readings for each topic are
listed below.

Prerequisites: Experience with structural equation models
Knowledge and experience with longitudinal data

Equation Perspective (NY:John Wiley Press).
Monday to Thursday Schedule:

9:00 am – 12:00 pm    Lecture
12:00 pm – 1:30 pm    Lunch Break
1:30 pm – 4:30 pm     Computer Lab
                      Review of assignments
                      Q&A

Friday Schedule:

9:00 am – 12:00 pm    Lecture
12:00 pm – 1:00 pm    Lunch Break
1:00 pm – 3:30 pm     Computer Lab
                      Review of assignments
                      Q&A

Note: On some days the lecture, lab, or Q&A session might run over the allotted time.

I. OVERVIEW & SEM REVIEW


II. UNCONDITIONAL LATENT CURVE MODELS (LCMs)

Bollen, K. A. and P. J. Curran. 2006. *Latent Curve Models: A Structural Equation Perspective*. Ch. 2 (all), Ch. 3 (all) Ch. 7 (208-14).
III. NONLINEARITY


IV. CONDITIONAL LATENT CURVE MODELS


V. ANALYSIS OF GROUPS


VI. MULTIVARIATE LCMs


VII. LATENT VARIABLE LCMs