THEORETICAL AND METHODOLOGICAL FOUNDATIONS
OF MULTILEVEL RESEARCH

Professor: Gilad Chen, Ph.D., University of Maryland
E-mail: giladchen@rhsmith.umd.edu

WORKSHOP DESCRIPTION

The purpose of this workshop is to develop the theoretical/conceptual background and
methodological/statistical skills required for conducting multilevel research in the areas of
Organizational Behavior, Human Resource Management, and related fields (e.g., Strategy,
Behavioral Marketing). Topic areas to be covered include: (1) multilevel construct and
measurement development and aggregation, (2) basics of multilevel modeling, and (3) advanced
topics in multilevel modeling (growth modeling, 3-level models, & multilevel moderated-
mediation models). The workshop assumes participants have basic background in scientific
principles, psychometrics (e.g., classical test theory, reliability & validity), and general linear
model methods (e.g., ANOVA, regression).

Given the complex nature of the topics covered, the main focus will be on providing an overview
and basic understanding of the topics, such that participants will gain the tools needed to
continue learning more about the topics following (outside) the course. The workshop will
consist of lectures, class discussions, and exercises. The lectures and discussions will provide
the background and thorough description of each of the topics to be covered. The exercises will
allow participants to learn how to actually conduct and interpret the multilevel analyses covered
in the lectures and discussions.

There is no required textbook for this workshop. Instead, readings taken from a variety of
journals and book chapters will be assigned. Some of the readings will be discussed more
explicitly in class than others. Those readings that are relevant to course topics, but may not be
discussed explicitly in class, are marked with *. Participants are encouraged to read the articles
and chapters BEFORE our scheduled meetings, to get the most out of this workshop. Since the
workshop meetings are scheduled very close together, I strongly encourage you to complete the
reading ahead of time, before our first meeting.

Participants are also expected to have access to MPlus (Base Program and Multilevel Add-On;
see http://www.statmodel.com/) as well as the R program for SPlus (see http://www.r-
project.org/). We will use both programs during the workshop, for some overlapping as well as
unique purposes and capabilities. If you cannot gain access to MPlus, you can still participate in
this workshop, but will not be able to perform some of the analyses we will conduct.
TOPICS, READINGS, & EXERCISES

NOTE:
• All readings and materials are available in the workshop’s Dropbox folders;
• Sessions’ power point slides will be provided, via the workshop Dropbox folders, prior to the workshop.

1. July 5 (9:00-16:30): Multilevel framework & aggregation

Topics:
• Introduction to levels of analysis principles and concepts
• Nature and types of constructs across levels
• Measurement and validation of constructs across levels
• Overview of inter-rater agreement and reliability statistics
• Brief introduction to the R language in S-PLUS
• Exercise: Calculating aggregation statistics in R

Readings:


2. **July 6 (9:00-16:30): Analyzing multilevel data in Random Coefficient Modeling (RCM)**

**Topics:**
- Overview of random coefficient modeling (RCM)
- Analytical process in RCM
- Modeling same-level (nested) and cross-level effects
- **Exercise:** Multilevel analyses in R and MPlus

**Readings:**


*Bliese, P. D. & Hanges, P. J. (2004). Being too liberal and too conservative: The perils of treating grouped data as though they were independent. *Organizational Research Methods, 7*, 400-417.*


3. **July 9 (9:00-16:30): Advanced topics in RCM**

**Topics:**
- Growth modeling in RCM
- 3-level analyses
- Moderated-mediation in multilevel models
- **Exercise:** Growth modeling analyses in R and MPlus
- **Exercise:** 3-level RCM analyses
- **Exercise:** Multilevel moderated mediation analyses

**Readings:**


*Chan, D. (1998). The conceptualization and analysis of change over time: An integrative approach incorporating longitudinal mean and covariance structures analysis (LMACS) and multiple indicator latent growth modeling (MLGM). *Organizational Research Methods, 1*, 421-483.


