

Psyc 507 – Multilevel Modeling in Psychological and Organizational Research

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*Class Meets: Mondays 2:00 – 5:00 PM
Location: 562 Sewall/207 Sewall (labs)
Office Hours: By appointment*

Course Overview

The purpose of this class is to familiarize you with multilevel theorizing and modeling techniques that are increasingly encountered in the psychological and organizational literature. Multilevel refers to data that exhibit dependencies due to a naturally or artificially nested structure. For example, measures may be nested within individuals, individuals nested within dyads, dyads nested within small groups, small groups nested within organizations, organizations nested within industries, and industries nested within nations or cultures. Although these data structures are exceedingly common, theories that take these structures into account are rare. As such, in addition to learning analytical approaches to multilevel data, we also will consider multilevel theory as we progress through the course. By the end of the semester, you should 1) understand the issues involved in a variety of multilevel contexts, 2) be able to conduct analyses required for these contexts, and 3) have an appreciation for how multilevel theories can enrich psychology generally.

Course Format

The course is broken down roughly by the type of hierarchy. We first will explore theory and methods used when individuals are nested within larger groups. About mid-way through the course, we will shift to explore more micro-level approaches used when measurement occasions are nested within individuals. These approaches include examinations of development across longer time frames as well as shorter term fluctuations in experiences, states, and behaviors. As we progress throughout the semester, the readings will be complemented by a good amount of time spent in the computer lab, learning to use the software that is necessary for the multiple methods used for modeling multilevel data.

To help solidify your understanding of these modeling techniques, there will be 4 individual lab projects throughout the semester worth 15 points each toward your final grade. Each lab will emphasize a different technique and will use individualized simulated data sets for you to analyze.

Finally, the primary portion of your grade (35%) will be based on a larger group project. Given the size of the class, there will be only two groups. One of these groups will focus their efforts on a multilevel data collection, analysis, and write-up of individuals nested within groups. The second group instead will complete a multilevel data collection, analysis, and write-up of measurements nested within people. Beyond these requirements, the nature of the study will be up to each group. For example, the individuals-within-groups project could examine dyads, small laboratory groups, existing work teams, etc., whereas the measurements-within-individuals project could

examine a traditional longitudinal design, a time series study, or an event-based diary study (Note: this cannot include a completely balanced design, as in a time structured laboratory experiment... although these data too are multilevel, the balanced and structured nature of the data will require none of the techniques you will learn in the course).

Because this assignment includes the collection of original data, we will have to decide on who is doing which projects fairly early. To ensure that the data collection can be accomplished in a reasonable amount of time, the studies will have to be somewhat limited in scope; that is, keep it simple. Your main purpose here is to gain extensive experience with one of the techniques presented in the course. Of course, the ideal is that it will be a simple design but a novel idea, so that the end product potentially will be publishable. As such, try to select a topic that has not been examined previously using these methods. For example, pick a topic that has been studied exclusively at the individual level, then consider how it might operate in a group setting, or, pick a topic that has only been examined cross-sectionally and then study some aspect of its development over time. The final report will be a group-based effort, in the form of an APA-style paper (i.e., introduction, methods, results, and discussion sections).

Grading Policy

Final grades in this course will be calculated based on the following components:

Individual Project 1 – 15%
Individual Project 2 – 15%
Individual Project 3 – 15%
Individual Project 4 – 15%
Group Project – 35%
Class Participation – 5%

Final Letter Grades will be distributed as follows:

| | | |
|-----------------------|----------------------|-------------------------|
| <i>100 – 98% = A+</i> | <i>97% – 93% = A</i> | <i>92% – 90% = A-89</i> |
| <i>– 87% = B+</i> | <i>86% – 83% = B</i> | <i>82% – 80% = B-79</i> |
| <i>– 77% = C+</i> | <i>76% – 73% = C</i> | <i>72% – 70% = C-69</i> |
| <i>– 67% = D+</i> | <i>66% – 63% = D</i> | <i>62% – 60% = D-</i> |
| <i>59 – 0% = F</i> | | |

Course Schedule

| <u>DATE</u> | <u>TOPIC</u> | <u>ASSIGNMENT</u> |
|-------------|--|--|
| 8/27 | <i>Overview of class and introduction to multilevel research</i> | <i>Taggar (2002); Liao & Chuang (2001); Judge, Scott, & Ilies (2006); Vancouver, Thompson, & Williams (2001)</i> |
| 9/3 | <i>LABOR DAY</i> | <i>No Class</i> |
| 9/10 | <i>Theoretical Issues in Multilevel Research</i> | <i>Schneider (1987); Klein, Dansereau, & Hall (1994); Morgeson & Hofmann (1999); Klein & Kozlowski (2000)</i> |

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|-------|--|---|
| | | <p>Half will read 1, half will read 2: Debate 1: Glick & Roberts (1984); Glick (1985); James, Joyce, & Slocum (1988); Glick (1988)</p> <p>Debate 2: George (1990); Dansereau & Markham (1992); George & James (1993)</p> <p>All will read: James, Demaree, & Wolf (1984); McGraw & Wong (1996); Bliese (2000)</p> |
| 9/17 | <i>Historical Issues in Multilevel Theory, plus ICCs and Agreement</i> | |
| 9/24 | <i>Basic Multilevel Random Coefficient Modeling (MRCM)</i> | Raudenbush, Bryk, Cheong, & Congdon (2004), Ch. 1 & 2 |
| 10/1 | <i>Lab 1: Basic HLM</i> | Hox (2002), Ch. 2; Hofmann, Griffin, & Gavin (2000) |
| 10/8 | <i>Advanced MRCM</i> | Enders & Tofighi (2007); Hox (2002), Ch. 3, 4, & 11 |
| 10/17 | <p>WEDNESDAY CLASS (strange solution to fall break)</p> <p><i>Lab 2: Advanced HLM</i></p> | Bauer, Preacher, & Gil (2006); Preacher, Curran, & Bauer (2006) |
| 10/22 | <i>Within-Person Multilevel Theory and Application</i> | Miner & Hulin (2006); Chan (1998); Glomb et al. (1999); Hofmann, Jacobs, & Baratta (1993); Fleeson & Leicht (2006) |
| 10/29 | <i>Lab 3: HLM over time</i> | Hox (2002), Ch. 5; West & Hepworth (1991); Beal & Weiss (2003) |
| 11/5 | <i>Latent Growth Modeling</i> | Bliese & Ployhart (2002); Park & Schutz (2005); Zyphur & Beal (2007) |
| 11/12 | <i>Lab 4: LGMs and ALTs</i> | Curran & Bollen (2001) |
| 11/19 | <i>Multilevel SEM</i> | Mehta & Neale (2005) |
| 11/26 | <i>Group 1</i> | |
| 12/3 | <i>Group 2</i> | |
| 12/10 | <i>Last day to turn in Group Project Reports</i> | |

Reference List

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