Description
This three-day workshop centers latent variable modeling as a strategy to address and advance diversity, equity & inclusion (DEI). This workshop actively interweaves social identities (e.g., race/ethnicity, gender, and social class) and equity with quantitative concepts, instead of distancing methods from the lived experiences of students and larger societal issues. A second emphasis in this workshop is learning to “speak the language” of quantitative methods, because methodological expertise is one way to communicate and advance diversity, equity and inclusion in spaces where facility with highly technical quantitative concepts and techniques is privileged.

To achieve these goals, latent variable models, which are rigorous and analytically flexible, are centered. Latent variable models afford powerfully detecting and remediating bias, as well as precisely examining heterogeneity across diverse social locations in group-specific models, instead of running one model while “controlling away” differences across participants.

Specifically, this workshop will cover: (a) confirmatory factor analyses, (b) MIMIC models, (c) measurement invariance testing, (d) full structural equation models (SEMs), (e) multi-group SEM, (f) reverse causality and cross-lagged panel models. Learning will entail conceptual understanding as well as “hands-on” practice conducting, and interpreting, analyses – with only minimal use of notation and equations. Approximately half of the workshop will be devoted to conceptual understanding and half to guided hands-on analyses. Attendees will use the MPlus software program to work through example analyses with datasets – which center issues of diversity, equity and inclusion - provided. However, attendees are strongly encouraged to bring their own data and problems. Minor data manipulation will be required, using attendee’s preferred software (e.g., SPSS, R, Stata).

Prerequisites: Graduate coursework, up to and including multiple regression. No prior experience with structural equation modeling or MPlus necessary.
Day 1 readings, by topic

- “Empirical examples” demonstrate the use of a quantitative approach (e.g., MIMIC models) to advance diversity, equity and inclusion.
- You are not expected to read everything on the syllabus before, or during, the workshop. The reading list is designed to give you additional resources to return to after the workshop.
- You will also be provided with a wider set of recommended readings and resources during the workshop.

Intro/latent variable perspective

Confirmatory Factor Analysis
- Kline, Chapter 13
- Recommended: Chapter 5, in Byrne, B.M. (2012). *Structural equation modeling with Mplus: Basic concepts, applications, and programming*. Taylor & Francis.

Multiple Indicators & Multiple Causes (MIMIC) Models
- Kline, p. 318-319; 354

Day 1 Schedule

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Wednesday May 13</th>
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<tbody>
<tr>
<td>9:00-9:30</td>
<td>Welcome and introductions</td>
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<tr>
<td>9:30-10:30</td>
<td>Perspective: Latent variable models to advance DEI</td>
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<tr>
<td>10:30-10:45</td>
<td>Break</td>
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<tr>
<td>10:45-12:00</td>
<td>Introduction to MPlus</td>
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<tr>
<td>12:00-1:00</td>
<td>Lunch break</td>
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1:00-2:45 Hypothesized factor structures: Confirmatory Factor Analyses (CFA)

2:45-3:00 Break

Bias & fairness in measurement (Part I): Multiple Indicators and Multiple Causes (MIMIC) models

3:00-5:00 Review, Q&A, integration

Day 2 readings, by topic

**Measurement Invariance**
- Kline, CH 16

**Structural Equation Models**
- Kline, CH 14

**Multi-Group Modeling**

Day 2 Schedule

Day 2 Thursday May 14
### Day 3 readings, by topic

**Covariates & control**
- Kline, CH 18
- Blog post, disentangling covariates vs control vs mediators

**Cross-lagged panel models & reverse causality models**
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
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<tbody>
<tr>
<td>9:00-10:45</td>
<td>Covariates, control &amp; rigor in research advancing DEI</td>
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<tr>
<td>10:45-11:00</td>
<td>Break</td>
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<tr>
<td>11:00-12:00</td>
<td>More rigor, please: Cross-lagged panel models &amp; reverse causality models</td>
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<td>12:00-1:00</td>
<td>Lunch break</td>
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<tr>
<td>1:00-2:00</td>
<td>Cross-lagged panel models &amp; reverse causality models (continued)</td>
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<tr>
<td>2:00-3:00</td>
<td>Review, integration, catch-up &amp; wrap-up</td>
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<tr>
<td>3:00-3:15</td>
<td>Break</td>
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<tr>
<td>3:15-5:00</td>
<td>Individual consultation with attendees</td>
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