

Modeling Within-Person Associations in Longitudinal Data
Statistical Modeling in Psychology, University of Mannheim
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This workshop is intended for social scientists who collect and analyze longitudinal data. It will be most useful for those who are well-acquainted with general linear models (regression, ANOVA), and have at least some familiarity with longitudinal data analysis through multilevel modeling or structural equation modeling. Examples will primarily utilize Mplus and R software. The workshop will build on chapters 1–7 of the Longitudinal Analysis textbook by presenting univariate and multivariate models for time-varying predictors of fluctuation and change (i.e., as covered in chapters 8–9, as well as in the sources listed below). All materials will be available for download [at the top of this page](#).

Day	Topic
June 13	Lecture 1: Concepts, Terminology, and Time-Invariant Predictors in Longitudinal Modeling Example and Activity 1: Time-Invariant Predictors in Polynomial Models for Change over Time
June 14	Lecture 2: Time-Varying Predictors and Their Levels of Relations in Longitudinal Models Example and Activity 2–3: Time-Varying Predictors and Multivariate Relations of Change

Suggested Readings:

- Bauer, D. J. (2003). Estimating multilevel linear models as structural equation models. *Journal of Educational and Behavioral Statistics*, 28(2), 135-167.
- Berry, D., & Willoughby, M. (2017). On the practical interpretability of cross-lagged panel models: Rethinking a developmental workhorse. *Child Development*, 88(4), 1186-1206.
- Curran, P. J., Lee, T., Howard, A. L., Lane, S., & MacCallum, R. (2012). Disaggregating within-person and between-person effects in multilevel and structural equation growth models. In J. R. Harring & G. R. Hancock (Eds.), *Advances in longitudinal methods in the social and behavioral sciences* (pp. 217–253). IAP Information Age Publishing.
- Curran, P. J., Howard, A. L., Bainter, S. A., Lane, S. T., & McGinley, J. S. (2014). The separation of between-person and within-person components of individual change over time: A latent curve model with structured residuals. *Journal of Consulting and Clinical Psychology*, 82(5), 879-894.
- Hoffman, L. (2015). *Longitudinal Analysis: Modeling Within-Person Fluctuation and Change*. Routledge Taylor and Francis. Supplemental materials at <http://www.PilesOfVariance.com/>
- Hoffman, L. (2019). On the interpretation of multivariate multilevel model parameters across different combinations of model specification and estimation. *Advances in Methods and Practices in Psychological Science*, 2(3), 288-311.
- Hoffman, L., & Walters, R. W. (2022). Catching up on multilevel modeling. *Annual Review of Psychology*, 73, 629-658.
- Lüdtke, O., Marsh, H. W., Robitzsch, A., Trautwein, U., Asparouhov, T., & Muthén, B. (2008). The multilevel latent covariate model: A new, more reliable approach to group-level effects in contextual studies. *Psychological Methods*, 13(3), 203-229.
- Preacher, K. J., Zyphur, M. J., & Zhang, Z. (2010). A general multilevel SEM framework for assessing multilevel mediation. *Psychological Methods*, 15(3), 209-233.
- Walters, R. W., Hoffman, L., & Templin, J. (2018). The power to detect and predict individual differences in intra-individual variability using the mixed-effects location-scale model. *Multivariate Behavioral Research*, 53(3), 360-374.
- Yaremych, H.E, Preacher, K.J., & Hedeker, D. (2021). Centering categorical predictors in multilevel models: Best practices and interpretation. Forthcoming in *Psychological Methods*.
<https://psycnet.apa.org/doi/10.1037/met0000434>