The Department of Educational Psychology's Research Methods, Measurement, & Evaluation (RMME) program and the Department of Statistics at the University of Connecticut present:

Shared Parameter Mixed-Effects Location Scale Models for Intensive Longitudinal Data

Dr. Donald Hedeker, University of Chicago
Friday, 3/4/2022, 3pm

https://uconn-cmr.webex.com/uconn-cmr/j.php?MTID=m6944095dfb2736dba214a9c6f6397805

Intensive longitudinal data are increasingly encountered in many research areas. For example, ecological momentary assessment (EMA) and/or mobile health (mHealth) methods are often used to study subjective experiences within changing environmental contexts. In these studies, up to 30 or 40 observations are usually obtained for each subject over a period of a week or so, allowing one to characterize a subject's mean and variance and specify models for both. In this presentation, we focus on an adolescent smoking study using EMA where interest is on characterizing changes in mood variation. We describe how covariates can influence the mood variances and also extend the statistical model by adding a subject-level random effect to the within-subject variance specification. This permits subjects to have influence on the mean, or location, and variability, or (square of the) scale, of their mood responses. The random effects are then shared in a modeling of future smoking levels. These mixed-effects location scale models have useful applications in many research areas where interest centers on the joint modeling of the mean and variance structure.

Dr. Donald Hedeker's chief expertise is in the development and use of advanced statistical methods for clustered and longitudinal data, with particular emphasis on mixed-effects models. He is the primary author of several freeware computer programs for mixed-effects analysis. With Robert Gibbons, Dr. Hedeker is the author of the text "Longitudinal Data Analysis," published by Wiley in 2006. More recently, he has developed methods and software for analysis of intensive longitudinal data, which are data with many measurements over time, often collected using mobile devices and/or the internet. Such data are increasingly obtained by researchers in many research areas, for example in the areas of mobile health (mHealth) and ecological momentary assessment (EMA) studies. Dr. Hedeker is an associate editor for *Statistics in Medicine*, an elected member of the Society of Multivariate Experimental Psychology and the International Statistical Institute, and a Fellow of the American Statistical Association, receiving the Long-Term Excellence Award from ASA's Health Policy Statistics Section in 2015. Dr. Hedeker earned his PhD in Quantitative Psychology and BA in Economics from the University of Chicago.

ONLINE INTERDISCIPLINARY SEMINARS ON STATISTICAL METHODOLOGY FOR SOCIAL AND BEHAVIORAL RESEARCH: Support for this seminar comes from Department of Educational Psychology's Research Methods, Measurement, & Evaluation (RMME) program and the Department of Statistics at the University of Connecticut (UCONN), the Statistical and Applied Mathematical Sciences Institute (SAMSI), and the New England Statistical Society (NESS). This seminar aims to promote connection between the statistics and social/behavioral science communities and encourage interdisciplinary research across faculty and students.

For announcements and WebEx live streaming links, please contact Tracy Burke (tracy.burke@uconn.edu).
For questions related to the seminars, please feel free to contact the session organizers, Prof. Xiaojing Wang (xiaojing.wang@uconn.edu) and/or Prof. Betsy McCoach (betsy.mccoach@uconn.edu). For information about previous and upcoming speakers, please visit https://stat.uconn.edu/online-seminars/ or https://rmme.education.uconn.edu/.

Additional Session Meeting Information:

Join by video system: Dial 26210746486@uconn-cmr.webex.com
You can also dial 173.243.2.68 and enter your meeting number.

Meeting # 2621 074 6486
Password: RMMESTAT

Join by phone: +1-415-655-0002 US Toll
Access code: 2621 074 6486