American Statistical Association 2021 Council of Chapters Traveling Course
Northeastern Illinois Chapter

Virtual Presentation

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Introduction to Structural Equation Modeling with Health-related Outcome Measures

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Abstract: This short course will make Structural Equation Modeling (SEM) accessible to students, faculty and other researchers across many disciplines, addressing issues unique to health and medicine. SEM is a multivariate technique that allows relationships among variables to be examined. SEM is often used in practice to model and test hypothesized causal relationships among observed and latent (unobserved) variables, including in analysis across time and groups. It can be viewed as the merging of a conceptual model, path diagram, confirmatory factor analysis and path analysis.

Participants will experience a mixture of lecture and discussion. We will introduce basic concepts, theory and SEM vocabulary. We will give real-world examples and conduct sample analyses using SEM software (MPlus). While no knowledge of SEM is required, a fundamental understanding of regression analysis and experimental design is recommended for participants taking this course. We aim to give researchers the tools to understand and begin to apply SEM approaches that study complex relationships among clinical measurements, individual and community-level characteristics, and patient-reported scales.