**UT Summer Statistics Institute**  
Department of Statistics and Data Sciences  
The University of Texas at Austin

Instructor Name: Tiffany Whittaker

Course Name: Structural Equation Modeling

Course Description: This course will build upon participants’ previous knowledge of multiple linear regression and expanding to allow for correlated and causally related latent variables. This course assumes no prior experience with Structural Equation Modeling and is intended as both a theoretical and practical introduction. Topics covered in the course will include path analysis with measured variables, confirmatory factor analysis, structural equation models with latent variables, and a preview of more advanced models. The software package *Mplus* will be used for exploring and providing support for structural models. Participants will conduct hands-on practice exercises using *Mplus* software throughout the course.

Day 1:
- Brief History of SEM
- Brief Review of Correlation/Regression
- Preliminary Notation and Terminology
- Model Identification and Model Estimation
- Example of Path Analysis Model in *Mplus*
- Interpretation of Output in *Mplus* from Path Analysis Model

Day 2:
- Model Estimation Techniques
- Model Fit
- Direct and Indirect Effects in Path Analysis
- Model Comparisons (Nested and Non-nested Models)

Day 3:
- Incorporating Latent Variables Into Path Models
- Confirmatory Factor Analysis (CFA)
- CFA Models in *Mplus*
- Model Modification

Day 4:
- Structural Equation Models
- Models With Categorical Data
- Dealing with Error Messages
- Preview of Advanced Topics/Dangers in Modeling