Lab #7

# Mean and Covariance Structure Models

NOTE: Each question should be a separate chunk in **R-studio’s Rmarkdown or R notebook** and using Knitr, knit your work and the output into a word document that you will upload into Canvas.

* Start with packages “foreign”, “lavaan” and “crayon”
* Load datasets forclass.sav and lsayshort.sav in R.

1. Standard Regression in EQS
   1. Using the “forclass.sav” data set reproduce the model from lab 4 (*a*, *e*, and *sos* predicting *soitot*) as a mean structure model.

* Include descriptive statistics, standardized values, fit measures and modification indices.
* Include interpretations of the output.
  1. Create a model diagram that includes the coefficients, means and intercepts.
  2. Separately, explain how you could calculate the obtained mean for your DV (shown in the descriptive statistics output) by using your unstandardized regression equation. Show your work and carry at least 4 decimals.

1. Using the Whitehead, Ainsworth, Wittig and Ainsworth (2009) paper and the <http://www.csun.edu/~ata20315/JRAEIE.htm> link perform a multi-group factor analysis testing for strong factorial invariance of the Exploration and Affirmation/Belonging factors between the Euro-American and Asian American samples.

* Include standardized values, fit measures and modification indices.
* Include interpretations of the output.

1. Using the lsayshort.sav
   1. Reproduce the linear growth model on the Math variables and estimate the intercepts of the intercept and slope factors.

* Include standardized values, fit measures and modification indices.
* Include interpretations of the output (especially the intercepts of the two factors).
  1. Reproduce the linear growth model on the Math variables with *female*, *mothered* and *homeres* as predictors. Estimate the intercepts of the intercept and slope factors.
* Include standardized values, fit measures and modification indices.
* Include interpretations of the output (especially the intercepts of the two factors).