Project Outline

- Question

  - Estimate Independence of a simple two-level study through a simple Decomposed Model and the effect of varying ICC, sample size, and level 2 units.

  - We well estimate the model based on HLM, standard Linear Modeling, and Cluster-Robust modeling

- Data Generating Model

  - Assign a 1 or 0 as a treatment or control for half of the participants in the model

  - $y = \beta_{0j} + \gamma_1 * T_i + e_{ij}$

  - $\beta_{oj} = \gamma_0 + u_{0j}$

- Conditions

  - Vary ICC [0, .10, .25]

  - Vary Sample Size [10, 26, 50]

  - Vary L2 Units

- Replications

  - 500 per condition

- Statistical Models

  - HLM, Robust Cluster, LM

- Evaluation

  - The simulation will be evaluated through Percent Bias as well as Mean Squared Error through the jackknife technique