***Research Aim 1***

To assess the accuracy of utilizing response time models with quantitative assessments of attention, executive control, and working memory.

**Hypothesis 1.** I hypothesize that response time distributions from the data will fall within a 66% highest density ratio (HDI) of the posterior predictive distribution.

Hypothesis 1A: The response time distribution from the Attention Network Test data will fall in 66% of the posterior HDI based on the shrinking spotlight model.

Hypothesis 1B: The response time distribution from the Dual N-Back Task data will fall in 66% of the posterior HDI based on the Linear Ballistic Accumulator model.

Hypothesis 1C: The response time distribution from the Open-Source Anticipated Response Inhibition data will fall in 95% of the posterior HDI based on the BEESTS-CV model.

***Research Aim 2***

To utilize response time modelling to assess changes in the cognitive measures throughout the last four weeks of a semester.

**Hypothesis 2.** I hypothesize that response time modeling will capture valid, ecological changes in participant cognition at the end of the semester, as measured by posterior estimates of the relevant regression coefficients having greater than 66% of the probability in the appropriate direction.

Hypothesis 2A: There will be a 66% or higher posterior probability increase in the interference time parameter across the four weeks.

Hypothesis 2B: There will be a 66% or higher posterior probability increase in the stop-signal reaction time parameter across the four weeks.

Hypothesis 2C: There will be a 66% or higher posterior probability decrease in the workload capacity parameter across the four weeks.

***Research Aim 3***

To evaluate the impact of end of semester stress on performance for the three cognitive function assessments.

**Hypothesis 3.** I hypothesize that the data will be at least three times more likely under hierarchical mixed-effect models including stress as a factor impacting cognition than under models that do not include stress (as predicted by Bayes factors).

Hypothesis 3A: The hierarchical mixed-effect model for interference time that includes stress scores will be at least three times more likely to explain the data than the model that does not include stress.

Hypothesis 3B: The hierarchical mixed-effect model for stop-signal reaction time that includes stress scores will be at least three times more likely to explain the data than the model that does not include stress.

Hypothesis 3C: The hierarchical mixed-effect model for workload capacity that includes stress scores will be at least three times more likely to explain the data than the model that does not include stress.