1) Main analysis: Linear mixed effects models

Cognition ~ gLFC-connectivity x AD severity + Cov

- *MMSE*
  LM delayed recall
- ***Control ROIs:*** *RFC, M1, Occipital pole*
- ***DIAN*** *EYO/CSF-Tau*
- ***DELCODE*** *CSF-Tau*

2) Comparison of model fit (Aikaike Information Criterion)

Full model: *Cognition ~ gLFC-connectivity x AD severity + Cov*
Reduced model: *Cognition ~ gLFC-connectivity + AD severity + Cov*

3) Projection of cognitive & biomarker trajectories:

Fitting polynomial mixed models e.g.

standard: Cognition ~ (gLFC-connectivity)^1 x AD severity + Cov
quadratic: Cognition ~ (gLFC-connectivity)^2 x AD severity + Cov
cubic: Cognition ~ (gLFC-connectivity)^3 x AD severity + Cov

Model selection based on Aikaike Information Criterion

$$\textbf{DIAN: Standardized difference} = \frac{\text{Predicted value in MC - Predicted value in NC}}{\text{Standard deviation in MC \& NC}}$$

$$\textbf{DELCODE: Standardized difference} = \frac{\text{Predicted value in A}\beta\text{+ - Predicted value in A}\beta\text{-}}{\text{Standard deviation in A}\beta\text{+ \& A}\beta\text{-}}$$