

PSQF 6271 Longitudinal MLM Formative Assessment #3: Lesa's Answer Key

Model Parameters:	Otherwise known as (list synonyms):	GLM:	For Multilevel Models: Time = 0,1,2,3		
		Regression Empty Model	Empty Means, Random Intercept Model	Fixed Linear Time, Random Intercept Model	Random Linear Time Model
		$y_i = \beta_0 + e_i$	$y_{ti} = \beta_{0i} + e_{ti}$ $\beta_{0i} = \gamma_{00} + U_{0i}$	$y_{ti} = \beta_{0i} + \beta_{1i}(Time_{ti}) + e_{ti}$ $\beta_{0i} = \gamma_{00} + U_{0i}$ $\beta_{1i} = \gamma_{10}$	$y_{ti} = \beta_{0i} + \beta_{1i}(Time_{ti}) + e_{ti}$ $\beta_{0i} = \gamma_{00} + U_{0i}$ $\beta_{1i} = \gamma_{10} + U_{1i}$
Terms that are Fixed Effects (and their interpretations in that model)	Model for the Means; Structural Model; constant part everybody gets to build their predicted outcome	$\beta_0 =$ fixed intercept = grand mean	$\gamma_{00} =$ fixed intercept = grand mean of person means	$\gamma_{00} =$ fixed intercept = predicted mean at time 0 $\gamma_{10} =$ fixed time slope = average change in y_{ti} per unit time	$\gamma_{00} =$ fixed intercept = predicted mean at time 0 $\gamma_{10} =$ fixed time slope = average change in y_{ti} per unit time; <i>now average slope of person slopes</i>
Terms that will have Level-2 variances (and their interpretations in that model)	Between-Person; inter-individual, time-invariant, random effects, G matrix	$e_i =$ person-specific residual; total deviation from sample mean for person i	$U_{0i} =$ random intercept = deviation of person mean from grand mean of person means	$U_{0i} =$ random intercept = deviation of person mean from grand mean of person means	$U_{0i} =$ random intercept = deviation of person mean from grand mean of person means at time 0 $U_{1i} =$ random time slope = deviation of person slope from grand mean of person slopes
Terms that will have Level-1 variances (and their interpretations in that model)	Within-Person, intra-individual, time-varying, residual, R matrix	(e_i could also go here, in the sense that it is a single-level model, although e_i does not go with WP)	$e_{ti} =$ residual = time-specific deviation from person mean for person i	$e_{ti} =$ residual = time-specific deviation from level-2 predicted outcome for person i	$e_{ti} =$ residual = time-specific deviation from level-2 predicted outcome for person i