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
		$y_i = \beta_0 + e_i$	$y_{ti} = \beta_{0i} + e_{ti}$ $\beta_{0i} = \gamma_{00} + U_{0i}$	$y_{ti} = \beta_{0i} + \beta_{1i}\,Time_{ti} + e_{ti}$ $\beta_{0i} = \gamma_{00} + U_{0i}$ $\beta_{1i} = \gamma_{10}$	$y_{ti} = \beta_{0i} + \beta_{1i}Time_{ti} + e_{ti}$ $\beta_{0i} = \gamma_{00} + U_{0i}$ $\beta_{1i} = \gamma_{10} + U_{1i}$
Fixed Effects (and their interpretations in that model)	Model for the Means; Structural Model; part everybody gets added to their predicted outcome	β_0 = fixed intercept = grand mean	γ_{00} = fixed intercept = grand mean of person means	γ_{00} = fixed intercept = predicted mean at time 0 γ_{10} = fixed time slope = average change in Y per unit time	γ_{00} = fixed intercept = predicted mean at time 0 γ_{10} = fixed time slope = average change in Y per unit time; now average slope of person slopes
Terms that represent Level 2 variances (and their interpretations in <u>that</u> 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 sample mean of person means	U_{0i} = random intercept = deviation of person mean from sample mean of person means	U_{0i} = random intercept = deviation of person mean from sample mean of person means at time 0 U_{1i} = random time slope = deviation of person slope from sample mean of person slopes
Terms that represent Level 1 variances (and their interpretations in <u>that</u> model)	Within-Person, intra-individual, time-varying, residual, R matrix		e_i = residual; time-specific deviation from person mean for person *i*	e_i = residual = time-specific deviation from level-2 predicted outcome for person *i*	e_i = residual = time-specific deviation from level-2 predicted outcome for person *i*