**PSQF 7375 Longitudinal MLM Formative Assessment #3: Lesa’s Answer Key**

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| **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 |
|  |   |  |   |   |   |
|  | yi = β0 + ei  |  |  yti = β0i + eti | yti = β0i + β1i Timeti + eti | yti = β0i + β1iTimeti + eti |
|  |   |  |  β0i = γ00 + U0i |  β0i = γ00 + U0i |  β0i = γ00 + U0i |
|  |   |  |   |  β1i = γ10  |  β1i = γ10 + U1i |
|  |   |  |   |   |   |
| 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 |  | $β\_{0}$ = fixed intercept = grand mean |  | γ00 = fixed intercept = grand mean of person means | γ00 = fixed intercept = predicted mean at time 0γ10 = fixed time slope = average change in Y per unit time | γ00 = fixed intercept = predicted mean at time 0γ10 = fixed time slope = average change in Y per unit time; now average slope of person slopes |
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| Terms that will haveLevel-2 variances(and their interpretations in that model) | Between-Person; inter-individual, time-invariant, random effects, G matrix |  | ei = person-specific residual; total deviation from sample mean for person *i* |  | U0i = random intercept = deviation of person mean from sample mean of person means | U0i = random intercept = deviation of person mean from sample mean of person means | U0i = random intercept = deviation of person mean from sample mean of person means at time 0U1i = random time slope = deviation of person slope from sample mean of person slopes |
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| Terms that will have Level-1 variances(and their interpretations in that model) | Within-Person, intra-individual, time-varying, residual, R matrix |  | (ei could also go here, in the sense that it is a single-level model) |  | eti = residual; time-specific deviation from person mean for person *i* | eti = residual = time-specific deviation from level-2 predicted outcome for person *i* | eti = residual = time-specific deviation from level-2 predicted outcome for person *i* |
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