**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 |
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| 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 |  | =  fixed intercept = grand mean |  | γ00 =  fixed intercept = grand mean  of person means | γ00 = fixed intercept  = predicted mean  at time 0  γ10 = fixed time slope =  average change in Y  per unit time | γ00 = fixed intercept =  predicted mean at time 0  γ10 = fixed time slope =  average change in Y  per unit time; now average  slope of person slopes |
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| Terms that  will have  Level-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 0  U1i = 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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