| *Variable* | *N* | *Mean* | *Std Dev* | *Minimum* | *Maximum* |
| --- | --- | --- | --- | --- | --- |
| precalc algebra Total\_score | 277 277 277 | 10.1119134 12.4223827 22.5342960 | 4.6311527 2.6618488 6.7493758 | 0 4.0000000 6.0000000 | 20.0000000 16.0000000 36.0000000 |



| *Model Information* | |
| --- | --- |
| *Data Set* | WU2019.GRADESCORE |
| *Response Variable* | Success |
| *Response Distribution* | Binomial |
| *Link Function* | Logit |
| *Variance Function* | Default |
| *Variance Matrix* | Not blocked |
| *Estimation Technique* | Residual PL |
| *Degrees of Freedom Method* | Containment |

| *Class Level Information* | | |
| --- | --- | --- |
| *Class* | *Levels* | *Values* |
| *Session* | 11 | 1 2 3 4 5 6 7 8 9 10 11 |

|  |  |
| --- | --- |
| *Number of Observations Read* | 362 |
| *Number of Observations Used* | 277 |

| *Dimensions* | |
| --- | --- |
| *G-side Cov. Parameters* | 1 |
| *Columns in X* | 2 |
| *Columns in Z* | 11 |
| *Subjects (Blocks in V)* | 1 |
| *Max Obs per Subject* | 277 |

| *Optimization Information* | |
| --- | --- |
| *Optimization Technique* | Dual Quasi-Newton |
| *Parameters in Optimization* | 1 |
| *Lower Boundaries* | 1 |
| *Upper Boundaries* | 0 |
| *Fixed Effects* | Profiled |
| *Starting From* | Data |

| *Iteration History* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Iteration* | *Restarts* | *Subiterations* | *Objective Function* | *Change* | *Max Gradient* |
| *0* | *0* | *4* | 1251.2197701 | 0.46694360 | 0.000072 |
| *1* | *0* | *3* | 1264.4630306 | 0.04005770 | 7.051E-6 |
| *2* | *0* | *2* | 1266.2205636 | 0.00307371 | 6.382E-7 |
| *3* | *0* | *1* | 1266.2740772 | 0.00009988 | 2.171E-7 |
| *4* | *0* | *1* | 1266.2755642 | 0.00000283 | 3.29E-8 |
| *5* | *0* | *0* | 1266.2756057 | 0.00000000 | 8.166E-7 |

|  |
| --- |
| Convergence criterion (PCONV=1.11022E-8) satisfied. |

| *Fit Statistics* | |
| --- | --- |
| *-2 Res Log Pseudo-Likelihood* | 1266.28 |
| *Generalized Chi-Square* | 257.74 |
| *Gener. Chi-Square / DF* | 0.94 |

| *Covariance Parameter Estimates* | | |
| --- | --- | --- |
| *Cov Parm* | *Estimate* | *Standard Error* |
| *Session* | 0.2363 | 0.2104 |

| *Solutions for Fixed Effects* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Effect* | *Estimate* | *Standard Error* | *DF* | *t Value* | *Pr > |t|* |
| *Intercept* | -0.6480 | 0.3612 | 10 | -1.79 | 0.1030 |
| *precalc* | 0.1624 | 0.03400 | 265 | 4.78 | <.0001 |

| *Type III Tests of Fixed Effects* | | | | |
| --- | --- | --- | --- | --- |
| *Effect* | *Num DF* | *Den DF* | *F Value* | *Pr > F* |
| *precalc* | 1 | 265 | 22.80 | <.0001 |

| *Estimates* | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *Label* | *Estimate* | *Standard Error* | *DF* | *t Value* | *Pr > |t|* | *Mean* | *Standard Error Mean* |
| *Avg Session 1* | 0.1388 | 0.3599 | 265 | 0.39 | 0.7001 | 0.5346 | 0.08953 |
| *Avg Session 2* | -0.3383 | 0.3467 | 265 | -0.98 | 0.3301 | 0.4162 | 0.08425 |
| *Avg Session 3* | 0.1745 | 0.3623 | 265 | 0.48 | 0.6305 | 0.5435 | 0.08990 |
| *Avg Session 4* | 0.6473 | 0.3699 | 265 | 1.75 | 0.0813 | 0.6564 | 0.08344 |
| *Avg Session 5* | 0.1626 | 0.3471 | 265 | 0.47 | 0.6399 | 0.5406 | 0.08620 |
| *Avg Session 6* | -0.2110 | 0.3330 | 265 | -0.63 | 0.5269 | 0.4475 | 0.08233 |
| *Avg Session 7* | 0.4682 | 0.3579 | 265 | 1.31 | 0.1920 | 0.6150 | 0.08475 |
| *Avg Session 8* | -0.06777 | 0.3516 | 265 | -0.19 | 0.8473 | 0.4831 | 0.08779 |
| *Avg Session 9* | -0.4839 | 0.3414 | 265 | -1.42 | 0.1576 | 0.3813 | 0.08055 |
| *Avg Session 10* | -0.2250 | 0.3553 | 265 | -0.63 | 0.5271 | 0.4440 | 0.08771 |
| *Avg Session 11* | -0.2654 | 0.3504 | 265 | -0.76 | 0.4495 | 0.4340 | 0.08609 |

| *Tests of Covariance Parameters Based on the Residual Pseudo-Likelihood* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Label* | *DF* | *-2 Res Log P-Like* | *ChiSq* | *Pr > ChiSq* | *Note* |
| Parameter list | 1 | 1269.44 | 3.16 | 0.0377 | MI |

|  |
| --- |
| ***MI: P-value based on a mixture of chi-squares.*** |

| *Model Information* | |
| --- | --- |
| *Data Set* | WU2019.GRADESCORE |
| *Response Variable* | Success |
| *Response Distribution* | Binomial |
| *Link Function* | Logit |
| *Variance Function* | Default |
| *Variance Matrix Blocked By* | Session |
| *Estimation Technique* | Maximum Likelihood |
| *Likelihood Approximation* | Gauss-Hermite Quadrature |
| *Degrees of Freedom Method* | Containment |

| *Class Level Information* | | |
| --- | --- | --- |
| *Class* | *Levels* | *Values* |
| *Session* | 11 | 1 2 3 4 5 6 7 8 9 10 11 |

|  |  |
| --- | --- |
| *Number of Observations Read* | 362 |
| *Number of Observations Used* | 277 |

| *Dimensions* | |
| --- | --- |
| *G-side Cov. Parameters* | 1 |
| *Columns in X* | 2 |
| *Columns in Z per Subject* | 1 |
| *Subjects (Blocks in V)* | 11 |
| *Max Obs per Subject* | 29 |

| *Optimization Information* | |
| --- | --- |
| *Optimization Technique* | Dual Quasi-Newton |
| *Parameters in Optimization* | 3 |
| *Lower Boundaries* | 1 |
| *Upper Boundaries* | 0 |
| *Fixed Effects* | Not Profiled |
| *Starting From* | GLM estimates |
| *Quadrature Points* | 3 |

| *Iteration History* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Iteration* | *Restarts* | *Evaluations* | *Objective Function* | *Change* | *Max Gradient* |
| *0* | *0* | 4 | 308.87455102 | . | 35.36789 |
| *1* | *0* | 4 | 308.73266118 | 0.14188984 | 4.641758 |
| *2* | *0* | 4 | 308.45627803 | 0.27638316 | 12.37835 |
| *3* | *0* | 2 | 308.21107798 | 0.24520005 | 0.683815 |
| *4* | *0* | 2 | 308.20691335 | 0.00416463 | 1.49234 |
| *5* | *0* | 2 | 308.2019485 | 0.00496485 | 0.947869 |
| *6* | *0* | 3 | 308.20183787 | 0.00011063 | 0.102827 |
| *7* | *0* | 3 | 308.20183533 | 0.00000254 | 0.003817 |
| *8* | *0* | 3 | 308.20183532 | 0.00000001 | 0.000039 |

|  |
| --- |
| Convergence criterion (GCONV=1E-8) satisfied. |

| *Fit Statistics* | |
| --- | --- |
| *-2 Log Likelihood* | 308.20 |
| *AIC (smaller is better)* | 314.20 |
| *AICC (smaller is better)* | 314.29 |
| *BIC (smaller is better)* | 315.40 |
| *CAIC (smaller is better)* | 318.40 |
| *HQIC (smaller is better)* | 313.45 |

| *Fit Statistics for Conditional Distribution* | |
| --- | --- |
| *-2 log L(Success | r. effects)* | 295.64 |
| *Pearson Chi-Square* | 254.42 |
| *Pearson Chi-Square / DF* | 0.92 |

| *Covariance Parameter Estimates* | | | |
| --- | --- | --- | --- |
| *Cov Parm* | *Subject* | *Estimate* | *Standard Error* |
| *Intercept* | Session | 0.2050 | 0.1947 |

| *Solutions for Fixed Effects* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Effect* | *Estimate* | *Standard Error* | *DF* | *t Value* | *Pr > |t|* |
| *Intercept* | -0.6562 | 0.3608 | 10 | -1.82 | 0.0990 |
| *precalc* | 0.1650 | 0.03467 | 265 | 4.76 | <.0001 |

| *Type III Tests of Fixed Effects* | | | | |
| --- | --- | --- | --- | --- |
| *Effect* | *Num DF* | *Den DF* | *F Value* | *Pr > F* |
| *precalc* | 1 | 265 | 22.64 | <.0001 |

| *Tests of Covariance Parameters Based on the Likelihood* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Label* | *DF* | *-2 Log Like* | *ChiSq* | *Pr > ChiSq* | *Note* |
| Parameter list | 1 | 310.94 | 2.74 | 0.0489 | MI |

|  |
| --- |
| ***MI: P-value based on a mixture of chi-squares.*** |

| *Model Information* | |
| --- | --- |
| *Data Set* | WU2019.PRED209\_PC |
| *Response Variable* | Success |
| *Number of Response Levels* | 2 |
| *Model* | binary logit |
| *Optimization Technique* | Fisher's scoring |

|  |  |
| --- | --- |
| *Number of Observations Read* | 277 |
| *Number of Observations Used* | 277 |

| *Response Profile* | | |
| --- | --- | --- |
| *Ordered Value* | *Success* | *Total Frequency* |
| *1* | 0 | 82 |
| *2* | 1 | 195 |

|  |
| --- |
| ***Probability modeled is Success=1.*** |

| *Score Test for Global Null Hypothesis* | | |
| --- | --- | --- |
| *Chi-Square* | *DF* | *Pr > ChiSq* |
| 0.0000 | 0 | <.0001 |

|  |
| --- |
| ***ROC Model: Glimmix model Pre-calc score*** |

| *ROC Model Information* | | |
| --- | --- | --- |
| *ROC Contrast Coefficients* | predicted | Mu |



| *ROC Association Statistics* | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *ROC Model* | *Mann-Whitney* | | | | *Somers' D* | *Gamma* | *Tau-a* |
| *Area* | *Standard Error* | *95% Wald Confidence Limits* | |
| *Glimmix model Pre-calc score* | 0.7315 | 0.0316 | 0.6696 | 0.7935 | 0.4630 | 0.4655 | 0.1937 |

| *Model Information* | |
| --- | --- |
| *Data Set* | WU2019.GRADESCORE |
| *Response Variable* | Success |
| *Response Distribution* | Binomial |
| *Link Function* | Logit |
| *Variance Function* | Default |
| *Variance Matrix Blocked By* | Session |
| *Estimation Technique* | Maximum Likelihood |
| *Likelihood Approximation* | Gauss-Hermite Quadrature |
| *Degrees of Freedom Method* | Containment |

| *Class Level Information* | | |
| --- | --- | --- |
| *Class* | *Levels* | *Values* |
| *Session* | 11 | 1 2 3 4 5 6 7 8 9 10 11 |

|  |  |
| --- | --- |
| *Number of Observations Read* | 362 |
| *Number of Observations Used* | 277 |

| *Dimensions* | |
| --- | --- |
| *G-side Cov. Parameters* | 1 |
| *Columns in X* | 2 |
| *Columns in Z per Subject* | 1 |
| *Subjects (Blocks in V)* | 11 |
| *Max Obs per Subject* | 29 |

| *Optimization Information* | |
| --- | --- |
| *Optimization Technique* | Dual Quasi-Newton |
| *Parameters in Optimization* | 3 |
| *Lower Boundaries* | 1 |
| *Upper Boundaries* | 0 |
| *Fixed Effects* | Not Profiled |
| *Starting From* | GLM estimates |
| *Quadrature Points* | 3 |

| *Iteration History* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Iteration* | *Restarts* | *Evaluations* | *Objective Function* | *Change* | *Max Gradient* |
| *0* | *0* | 4 | 321.72052374 | . | 46.60761 |
| *1* | *0* | 4 | 321.53423011 | 0.18629364 | 4.076361 |
| *2* | *0* | 4 | 321.11083387 | 0.42339624 | 12.19519 |
| *3* | *0* | 2 | 321.00085295 | 0.10998092 | 5.925055 |
| *4* | *0* | 2 | 320.96400269 | 0.03685026 | 4.286057 |
| *5* | *0* | 2 | 320.9588239 | 0.00517878 | 1.001502 |
| *6* | *0* | 3 | 320.9587522 | 0.00007170 | 0.122391 |
| *7* | *0* | 3 | 320.95875008 | 0.00000213 | 0.000507 |
| *8* | *0* | 3 | 320.95875005 | 0.00000002 | 0.000772 |

|  |
| --- |
| Convergence criterion (GCONV=1E-8) satisfied. |

| *Fit Statistics* | |
| --- | --- |
| *-2 Log Likelihood* | 320.96 |
| *AIC (smaller is better)* | 326.96 |
| *AICC (smaller is better)* | 327.05 |
| *BIC (smaller is better)* | 328.15 |
| *CAIC (smaller is better)* | 331.15 |
| *HQIC (smaller is better)* | 326.21 |

| *Fit Statistics for Conditional Distribution* | |
| --- | --- |
| *-2 log L(Success | r. effects)* | 306.30 |
| *Pearson Chi-Square* | 260.35 |
| *Pearson Chi-Square / DF* | 0.94 |

| *Covariance Parameter Estimates* | | | |
| --- | --- | --- | --- |
| *Cov Parm* | *Subject* | *Estimate* | *Standard Error* |
| *Intercept* | Session | 0.2532 | 0.2169 |

| *Solutions for Fixed Effects* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Effect* | *Estimate* | *Standard Error* | *DF* | *t Value* | *Pr > |t|* |
| *Intercept* | -1.4624 | 0.6706 | 10 | -2.18 | 0.0542 |
| *algebra* | 0.1943 | 0.05379 | 265 | 3.61 | 0.0004 |

| *Type III Tests of Fixed Effects* | | | | |
| --- | --- | --- | --- | --- |
| *Effect* | *Num DF* | *Den DF* | *F Value* | *Pr > F* |
| *algebra* | 1 | 265 | 13.06 | 0.0004 |

| *Tests of Covariance Parameters Based on the Likelihood* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Label* | *DF* | *-2 Log Like* | *ChiSq* | *Pr > ChiSq* | *Note* |
| Parameter list | 1 | 324.87 | 3.91 | 0.0240 | MI |

|  |
| --- |
| ***MI: P-value based on a mixture of chi-squares.*** |

| *Model Information* | |
| --- | --- |
| *Data Set* | WU2019.PRED209\_AL |
| *Response Variable* | Success |
| *Number of Response Levels* | 2 |
| *Model* | binary logit |
| *Optimization Technique* | Fisher's scoring |

|  |  |
| --- | --- |
| *Number of Observations Read* | 277 |
| *Number of Observations Used* | 277 |

| *Response Profile* | | |
| --- | --- | --- |
| *Ordered Value* | *Success* | *Total Frequency* |
| *1* | 0 | 82 |
| *2* | 1 | 195 |

|  |
| --- |
| ***Probability modeled is Success=1.*** |

| *Score Test for Global Null Hypothesis* | | |
| --- | --- | --- |
| *Chi-Square* | *DF* | *Pr > ChiSq* |
| 0.0000 | 0 | <.0001 |

|  |
| --- |
| ***ROC Model: Glimmix model Algebra score*** |

| *ROC Model Information* | | |
| --- | --- | --- |
| *ROC Contrast Coefficients* | predicted | Mu |



| *ROC Association Statistics* | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *ROC Model* | *Mann-Whitney* | | | | *Somers' D* | *Gamma* | *Tau-a* |
| *Area* | *Standard Error* | *95% Wald Confidence Limits* | |
| *Glimmix model Algebra score* | 0.7189 | 0.0338 | 0.6528 | 0.7851 | 0.4378 | 0.4417 | 0.1831 |

| *Model Information* | |
| --- | --- |
| *Data Set* | WU2019.GRADESCORE |
| *Response Variable* | Success |
| *Response Distribution* | Binomial |
| *Link Function* | Logit |
| *Variance Function* | Default |
| *Variance Matrix Blocked By* | Session |
| *Estimation Technique* | Maximum Likelihood |
| *Likelihood Approximation* | Gauss-Hermite Quadrature |
| *Degrees of Freedom Method* | Containment |

| *Class Level Information* | | |
| --- | --- | --- |
| *Class* | *Levels* | *Values* |
| *Session* | 11 | 1 2 3 4 5 6 7 8 9 10 11 |

|  |  |
| --- | --- |
| *Number of Observations Read* | 362 |
| *Number of Observations Used* | 277 |

| *Dimensions* | |
| --- | --- |
| *G-side Cov. Parameters* | 1 |
| *Columns in X* | 3 |
| *Columns in Z per Subject* | 1 |
| *Subjects (Blocks in V)* | 11 |
| *Max Obs per Subject* | 29 |

| *Optimization Information* | |
| --- | --- |
| *Optimization Technique* | Dual Quasi-Newton |
| *Parameters in Optimization* | 4 |
| *Lower Boundaries* | 1 |
| *Upper Boundaries* | 0 |
| *Fixed Effects* | Not Profiled |
| *Starting From* | GLM estimates |
| *Quadrature Points* | 3 |

| *Iteration History* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Iteration* | *Restarts* | *Evaluations* | *Objective Function* | *Change* | *Max Gradient* |
| *0* | *0* | 4 | 308.93152649 | . | 41.65367 |
| *1* | *0* | 4 | 308.78315954 | 0.14836695 | 7.088483 |
| *2* | *0* | 4 | 308.37173838 | 0.41142116 | 28.16964 |
| *3* | *0* | 3 | 308.30752371 | 0.06421467 | 24.93719 |
| *4* | *0* | 4 | 308.16632683 | 0.14119688 | 4.287027 |
| *5* | *0* | 2 | 308.14095878 | 0.02536805 | 4.100709 |
| *6* | *0* | 3 | 308.1354254 | 0.00553338 | 0.972839 |
| *7* | *0* | 3 | 308.13533544 | 0.00008996 | 0.09655 |
| *8* | *0* | 3 | 308.1353325 | 0.00000294 | 0.010438 |
| *9* | *0* | 3 | 308.13533248 | 0.00000002 | 0.000044 |

|  |
| --- |
| Convergence criterion (GCONV=1E-8) satisfied. |

| *Fit Statistics* | |
| --- | --- |
| *-2 Log Likelihood* | 308.14 |
| *AIC (smaller is better)* | 316.14 |
| *AICC (smaller is better)* | 316.28 |
| *BIC (smaller is better)* | 317.73 |
| *CAIC (smaller is better)* | 321.73 |
| *HQIC (smaller is better)* | 315.13 |

| *Fit Statistics for Conditional Distribution* | |
| --- | --- |
| *-2 log L(Success | r. effects)* | 295.25 |
| *Pearson Chi-Square* | 254.28 |
| *Pearson Chi-Square / DF* | 0.92 |

| *Covariance Parameter Estimates* | | | |
| --- | --- | --- | --- |
| *Cov Parm* | *Subject* | *Estimate* | *Standard Error* |
| *Intercept* | Session | 0.2138 | 0.2020 |

| *Solutions for Fixed Effects* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Effect* | *Estimate* | *Standard Error* | *DF* | *t Value* | *Pr > |t|* |
| *Intercept* | -0.8106 | 0.7000 | 10 | -1.16 | 0.2738 |
| *precalc* | 0.1573 | 0.04565 | 264 | 3.45 | 0.0007 |
| *algebra* | 0.01873 | 0.07264 | 264 | 0.26 | 0.7968 |

| *Type III Tests of Fixed Effects* | | | | |
| --- | --- | --- | --- | --- |
| *Effect* | *Num DF* | *Den DF* | *F Value* | *Pr > F* |
| *precalc* | 1 | 264 | 11.87 | 0.0007 |
| *algebra* | 1 | 264 | 0.07 | 0.7968 |

| *Tests of Covariance Parameters Based on the Likelihood* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Label* | *DF* | *-2 Log Like* | *ChiSq* | *Pr > ChiSq* | *Note* |
| Parameter list | 1 | 310.93 | 2.80 | 0.0472 | MI |

|  |
| --- |
| ***MI: P-value based on a mixture of chi-squares.*** |

| *Model Information* | |
| --- | --- |
| *Data Set* | WU2019.PRED209\_PCAL |
| *Response Variable* | Success |
| *Number of Response Levels* | 2 |
| *Model* | binary logit |
| *Optimization Technique* | Fisher's scoring |

|  |  |
| --- | --- |
| *Number of Observations Read* | 277 |
| *Number of Observations Used* | 277 |

| *Response Profile* | | |
| --- | --- | --- |
| *Ordered Value* | *Success* | *Total Frequency* |
| *1* | 0 | 82 |
| *2* | 1 | 195 |

|  |
| --- |
| ***Probability modeled is Success=1.*** |

| *Score Test for Global Null Hypothesis* | | |
| --- | --- | --- |
| *Chi-Square* | *DF* | *Pr > ChiSq* |
| 0.0000 | 0 | <.0001 |

|  |
| --- |
| ***ROC Model: Glimmix model pre-calc and algebra score*** |

| *ROC Model Information* | | |
| --- | --- | --- |
| *ROC Contrast Coefficients* | predicted | Mu |



| *ROC Association Statistics* | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *ROC Model* | *Mann-Whitney* | | | | *Somers' D* | *Gamma* | *Tau-a* |
| *Area* | *Standard Error* | *95% Wald Confidence Limits* | |
| *Glimmix model pre-calc and algebra score* | 0.7344 | 0.0315 | 0.6727 | 0.7962 | 0.4689 | 0.4691 | 0.1961 |

| *Model Information* | |
| --- | --- |
| *Data Set* | WU2019.GRADESCORE |
| *Response Variable* | Success |
| *Response Distribution* | Binomial |
| *Link Function* | Logit |
| *Variance Function* | Default |
| *Variance Matrix Blocked By* | Session |
| *Estimation Technique* | Maximum Likelihood |
| *Likelihood Approximation* | Gauss-Hermite Quadrature |
| *Degrees of Freedom Method* | Containment |

| *Class Level Information* | | |
| --- | --- | --- |
| *Class* | *Levels* | *Values* |
| *Session* | 11 | 1 2 3 4 5 6 7 8 9 10 11 |

|  |  |
| --- | --- |
| *Number of Observations Read* | 362 |
| *Number of Observations Used* | 277 |

| *Dimensions* | |
| --- | --- |
| *G-side Cov. Parameters* | 1 |
| *Columns in X* | 2 |
| *Columns in Z per Subject* | 1 |
| *Subjects (Blocks in V)* | 11 |
| *Max Obs per Subject* | 29 |

| *Optimization Information* | |
| --- | --- |
| *Optimization Technique* | Dual Quasi-Newton |
| *Parameters in Optimization* | 3 |
| *Lower Boundaries* | 1 |
| *Upper Boundaries* | 0 |
| *Fixed Effects* | Not Profiled |
| *Starting From* | GLM estimates |
| *Quadrature Points* | 3 |

| *Iteration History* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Iteration* | *Restarts* | *Evaluations* | *Objective Function* | *Change* | *Max Gradient* |
| *0* | *0* | 4 | 310.4820723 | . | 84.76767 |
| *1* | *0* | 4 | 310.29611946 | 0.18595283 | 10.5054 |
| *2* | *0* | 4 | 309.86334637 | 0.43277309 | 17.51847 |
| *3* | *0* | 2 | 309.81710344 | 0.04624293 | 7.976347 |
| *4* | *0* | 2 | 309.79410676 | 0.02299668 | 4.931725 |
| *5* | *0* | 2 | 309.79051751 | 0.00358924 | 0.787893 |
| *6* | *0* | 3 | 309.79024757 | 0.00026994 | 0.434509 |
| *7* | *0* | 3 | 309.79024161 | 0.00000596 | 0.110202 |
| *8* | *0* | 3 | 309.79024125 | 0.00000036 | 0.000022 |

|  |
| --- |
| Convergence criterion (GCONV=1E-8) satisfied. |

| *Fit Statistics* | |
| --- | --- |
| *-2 Log Likelihood* | 309.79 |
| *AIC (smaller is better)* | 315.79 |
| *AICC (smaller is better)* | 315.88 |
| *BIC (smaller is better)* | 316.98 |
| *CAIC (smaller is better)* | 319.98 |
| *HQIC (smaller is better)* | 315.04 |

| *Fit Statistics for Conditional Distribution* | |
| --- | --- |
| *-2 log L(Success | r. effects)* | 295.53 |
| *Pearson Chi-Square* | 255.15 |
| *Pearson Chi-Square / DF* | 0.92 |

| *Covariance Parameter Estimates* | | | |
| --- | --- | --- | --- |
| *Cov Parm* | *Subject* | *Estimate* | *Standard Error* |
| *Intercept* | Session | 0.2519 | 0.2185 |

| *Solutions for Fixed Effects* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Effect* | *Estimate* | *Standard Error* | *DF* | *t Value* | *Pr > |t|* |
| *Intercept* | -1.4232 | 0.5186 | 10 | -2.74 | 0.0207 |
| *Total\_score* | 0.1077 | 0.02307 | 265 | 4.67 | <.0001 |

| *Type III Tests of Fixed Effects* | | | | |
| --- | --- | --- | --- | --- |
| *Effect* | *Num DF* | *Den DF* | *F Value* | *Pr > F* |
| *Total\_score* | 1 | 265 | 21.79 | <.0001 |

| *Tests of Covariance Parameters Based on the Likelihood* | | | | | |
| --- | --- | --- | --- | --- | --- |
| *Label* | *DF* | *-2 Log Like* | *ChiSq* | *Pr > ChiSq* | *Note* |
| Parameter list | 1 | 313.53 | 3.74 | 0.0266 | MI |

|  |
| --- |
| ***MI: P-value based on a mixture of chi-squares.*** |

| *Model Information* | |
| --- | --- |
| *Data Set* | WU2019.PRED209\_TS |
| *Response Variable* | Success |
| *Number of Response Levels* | 2 |
| *Model* | binary logit |
| *Optimization Technique* | Fisher's scoring |

|  |  |
| --- | --- |
| *Number of Observations Read* | 277 |
| *Number of Observations Used* | 277 |

| *Response Profile* | | |
| --- | --- | --- |
| *Ordered Value* | *Success* | *Total Frequency* |
| *1* | 0 | 82 |
| *2* | 1 | 195 |

|  |
| --- |
| ***Probability modeled is Success=1.*** |

| *Score Test for Global Null Hypothesis* | | |
| --- | --- | --- |
| *Chi-Square* | *DF* | *Pr > ChiSq* |
| 0.0000 | 0 | <.0001 |

|  |
| --- |
| ***ROC Model: Glimmix model SAT*** |

| *ROC Model Information* | | |
| --- | --- | --- |
| *ROC Contrast Coefficients* | predicted | Mu |



| *ROC Association Statistics* | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *ROC Model* | *Mann-Whitney* | | | | *Somers' D* | *Gamma* | *Tau-a* |
| *Area* | *Standard Error* | *95% Wald Confidence Limits* | |
| *Glimmix model SAT* | 0.7391 | 0.0316 | 0.6772 | 0.8009 | 0.4781 | 0.4795 | 0.2000 |

| *Analysis Variable : pred\_avg Mu (no blups)* | | | |
| --- | --- | --- | --- |
| *precalc* | *N Obs* | *N* | *Mean* |
| 0 | 1 | 1 | 0.3415963 |
| 1 | 1 | 1 | 0.3796097 |
| 2 | 5 | 5 | 0.4191602 |
| 3 | 13 | 13 | 0.4597776 |
| 4 | 14 | 14 | 0.5009363 |
| 5 | 13 | 13 | 0.5420824 |
| 6 | 17 | 17 | 0.5826624 |
| 7 | 21 | 21 | 0.6221528 |
| 8 | 30 | 30 | 0.6600864 |
| 9 | 28 | 28 | 0.6960721 |
| 10 | 15 | 15 | 0.7298076 |
| 11 | 15 | 15 | 0.7610837 |
| 12 | 15 | 15 | 0.7897823 |
| 13 | 18 | 18 | 0.8158676 |
| 14 | 13 | 13 | 0.8393744 |
| 15 | 18 | 18 | 0.8603937 |
| 16 | 11 | 11 | 0.8790588 |
| 17 | 9 | 9 | 0.8955314 |
| 18 | 7 | 7 | 0.9099901 |
| 19 | 7 | 7 | 0.9226206 |
| 20 | 6 | 6 | 0.9336081 |



| *Analysis Variable : pred\_avg Mu (no blups)* | | | |
| --- | --- | --- | --- |
| *Total\_score* | *N Obs* | *N* | *Mean* |
| 6 | 1 | 1 | 0.3149389 |
| 7 | 2 | 2 | 0.3386185 |
| 8 | 2 | 2 | 0.3631347 |
| 9 | 2 | 2 | 0.3883836 |
| 10 | 3 | 3 | 0.4142462 |
| 11 | 3 | 3 | 0.4405903 |
| 12 | 6 | 6 | 0.4672733 |
| 13 | 7 | 7 | 0.4941449 |
| 14 | 9 | 9 | 0.5210503 |
| 15 | 16 | 16 | 0.5478341 |
| 16 | 9 | 9 | 0.5743437 |
| 17 | 10 | 10 | 0.6004327 |
| 18 | 5 | 5 | 0.6259640 |
| 19 | 20 | 20 | 0.6508127 |
| 20 | 10 | 10 | 0.6748680 |
| 21 | 17 | 17 | 0.6980351 |
| 22 | 9 | 9 | 0.7202357 |
| 23 | 20 | 20 | 0.7414088 |
| 24 | 20 | 20 | 0.7615100 |
| 25 | 14 | 14 | 0.7805113 |
| 26 | 8 | 8 | 0.7983995 |
| 27 | 13 | 13 | 0.8151750 |
| 28 | 11 | 11 | 0.8308504 |
| 29 | 17 | 17 | 0.8454483 |
| 30 | 4 | 4 | 0.8590002 |
| 31 | 11 | 11 | 0.8715444 |
| 32 | 7 | 7 | 0.8831244 |
| 33 | 7 | 7 | 0.8937877 |
| 34 | 4 | 4 | 0.9035844 |
| 35 | 5 | 5 | 0.9125658 |
| 36 | 5 | 5 | 0.9207839 |

