**PSQF 6242 FA6 Starter Kit**

Please answer the questions below about the following model. Assume all variables are centered at 0. To refer to the fixed effects, you can write "beta" and then the number of its subscript (e.g., beta0).

$$y\_{i}=β\_{0}+β\_{1}\left(F\_{i}\right)+β\_{2}\left(G\_{i}\right)+β\_{3}\left(H\_{i}\right)+β\_{4}\left(I\_{i}\right)+β\_{5}\left(F\_{i}\right)(G\_{i})+β\_{6}\left(F\_{i}\right)(H\_{i})+e\_{i}$$

1. Write the equation and an estimate/lincom statement for the predicted outcome (i.e., conditional mean from the fixed effects only) for a person with F=2, G=3, H=4, and I=5.

yhat = beta0 + beta1(F) + beta2(G) + beta3(H) + beta4(I) + beta5(F)(G) + beta6(F)(H)

yhat = beta0 + beta1(2) + beta2(3) + beta3(4) + beta4(5) + beta5(2)(3) + beta6(2)(4)

ESTIMATE "yhat for F=2, G=3, H=4, I=5" intercept 1  F 2  G 3  H 4  I 5  F\*G 6  F\*H 8;

lincom \_cons\*1 + F\*\_ + G\*\_ + H\*\_ + I\*\_ + F#G\*\_ + F#H\*\_; // yhat for F=2, G=3, H=4, I=5

2. Write the equation and an estimate/lincom statement for the predicted G slope for someone with F=2.

yhat = beta0 + beta1(F) + beta2(G) + beta3(H) + beta4(I) + beta5(F)(G) + beta6(F)(H)

G slope = beta2(G) + beta5(F)(G) = beta2 + beta5(F)

ESTIMATE "G slope for F=2" G 1  F\*G 2 ;

lincom G\*1 + F#G\*2 // G slope for F=2

3. Write the equation and estimate/lincom statement for the predicted F slope for someone with G=3 and H=4.

 yhat = beta0 + beta1(F) + beta2(G) + beta3(H) + beta4(I) + beta5(F)(G) + beta6(F)(H)

F slope = beta1 + beta5 (G) + beta6 (H)

ESTIMATE "F slope for G=3 and H=4"   F 1  F\*G 3  F\*H 4;

lincom F\*1 + F#G\*3 + F#H\*4 // F slope for G=3 and H=4

4. Write the equation and estimate/lincom statement for the predicted I slope for someone with an F=2, G=3, and H=4.

yhat = beta0 + beta1(F) + beta2(G) + beta3(H) + beta4(I) + beta5(F)(G) + beta6(F)(H)

I slope = beta4

ESTIMATE "I slope for F=2, G=3, and H=4" I 1;

lincom I\*1 // I slope for F=2, G=3, and H=4