**Review of some of S4 slides Sep. 14, 2022**

1. Essentially, “RM ANOVA” is the same as fitting a linear mixed model with a random intercept, but focuses on tests for group, time or group\*time effects.
2. For RM ANOVA, we create the usual ANOVA table with the addition of *Subject(group)* as a source of variability by adding it as a ‘fixed effect’ term in the model, and then make corrections to the tests (specifically, for *Group*) to account for the repeated measures. F-tests…
   1. …for *Time* and *Group\*Yime* use MSresidual in the denominator of the F-statistic, and the denominator DF is the degrees of freedom associated with MSresidual.
   2. …for *Group*, we use MSsubject(group) in the denominator of the F-statistic, and the denominator DF is the degrees of freedom associated with MSsubject(group).
3. Determining DDF uses simple known quantities in RM ANOVA. Since RM ANOVA is a special case of the LMM, these same simple quantities apply for DDF in some linear mixed models. (Thus, in the simpler models, the methods tend to produce the same DDF.) But for more complex data, calculating DDF is not straightforward, and the different DDF methods may yield different results. As we’ve discussed, some methods are more liberal (like ‘residual’), and some are more conservative (like Satterthwaite and Kenward-Roger). Generally I’d recommend going with the more statistically conservative methods.
4. Questions on elements in the ANOVA table:
   1. Consider quantities related to the ANOVA table. What type of distributions do they have? Note that an individual *Y* is normally distributed.
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      2. MStime/MSresidual
   2. Regarding expected mean square quantities: what do *QT*, *QG* actually look like? They are basically sum of squared time and group effects, respectively (see course notes).
5. There are 2 types of predicted values you can obtain for a linear mixed model, predicted values and predicted mean values (see slide 20 on s4 slides).