

Homework 4

1. 13-9 (Gauge R & R). Analyze the data as a random effects model (the book fails to provide any questions). Compare answers using PROC MIXED and PROC GLM.
2. 13-21e. (EMS) Don't compute SS.
3. Compute (by hand) the expected mean squares for the following experiment. On each of three days, two tanks with shrimp were exposed to a treatment (a reversed day/night cycle) while two control tanks with shrimp were exposed to a control (the usual day/night cycle). Your model should include Day (Random), Hour (Fixed), Tank (Random), and Treatment (Fixed), and relevant interaction terms (the factors listed can be nested). A single measure of overall activity in each tank was recorded each hour (i.e., 12 AM, 1 AM, . . . , 11 PM). This is a repeated measures study incidentally (hour is the repeated measures factor). How would you test the treatment? How would you test for an hour effect? Using randomly generated data for the response (I would simply generate 288 observations from a $N(0,1)$ distribution), attempt to obtain tables of the expected mean squares in SAS and Minitab. Did you have any difficulties?