

Assignment #7

(Due: Monday, March 31, 2008)

Reading: Oehlert, Chapters 11 and 12.1-12.6.

Written Assignment:

Instructions: For random and mixed effects models, in this homework set, use the ANOVA method (Method of Moments, E MS) for your analyses. You can get the appropriate Mean Squares from fitting models with $\text{aov}()$, but remember that the F-tests may need different denominators than in fixed effects models.

1. E11.6

2. P11.2

Additionally: b) Consider "Laboratories" as fixed factor, "Sample" as random. Are any of the effects significant (main effects, interaction effects)?

Remark: When analyzing the data, use the $Y^{-0.25}$ transformation. Justify why the transformation is appropriate.

3. Consider the data in P12.6, but assume that each of the numbers comes from one gallon of milk (80 gallons total), and labs do one determination per gallon. Assume that "Abuse" is random, nested in "Lab", and "Lab" is fixed.

a) Describe how the "Abuse" levels would have to be determined, and how data were obtained in this nested design.

b) Analyze the data and draw conclusions. Provide an underline diagram for the differences between labs; use HSD with a simultaneous error probability of 0.05.