Statistics 411/511
Homework 6
Due in Lab Monday and Tuesday, November 7 and 8

- **Homework Guidelines** Homework must be typed and stapled. Pease label your paper with your name and lab time. See the syllabus for more guidelines.
- **Academic Integrity** You are encouraged to *discuss* the homework with other students, but what you turn in must be your own work in your own words. The syllabus contains more details and links to OSU's Student Conduct Code.

1. Fill in the four empty elements in the following partially complete ANOVA table. (The table is available in both Word and Excel format on Canvas in Files>Homework.)

Source	df	Sum of Squares	Mean Squares	F-statistic	p-value
Treatment	3	335.35			0.00018
Residuals			8.928		
Total	19	478.2			

2. Revisit the diet and longevity data of case study 5.1.1.
   (a) As in Lab 5, items 2(d),(e), and (f), produce an ANOVA table, but this time, reformat the table so it doesn't look copied and pasted from R. *Include a total row.*
   (b) State the full and reduced models tested by the F-statistic in the ANOVA table in part (a).
   (c) On the ANOVA table from part (a), find the "extra sum of squares" and "extra degrees of freedom."
   (d) On the ANOVA table from part (a), find the residual sum of squares and degrees of freedom for the full model in part (b).
   (e) Fit the equal means model in R using the following commands (That's a number one on the right side of the formula in the first command. It represents a single mean.)

```
> case0501.EqualMeans <- aov(Lifetime ~ 1,data=case0501)
> anova(case0501.EqualMeans)
```

   Find the residual sum of squares and degrees of freedom for the reduced model on this output.
   (f) Confirm that the extra sum of squares in part (c) are the difference in residual sums of squares from parts (d) and (e).