

Homework 9

1. Answer the following questions using the example in 14.50
 - (a) Compute pairwise differences and verify the Wilcoxon signed rank test statistic in the output provided.
 - (b) Use `wilcox.test` in R for the test of $H_0 : \eta = 0$ versus $H_A : \eta > 0$ (your p-value will be somewhat smaller than the p-value in the output provided by the book).
2. 10.8. Would you consider this a designed study or observational study? Why?
3. 10.16 (Graduate students only)
4. 10.30. Use R for the random assignment of sampling methods to soil specimens.
5. Answer the following questions using the example in 10.36. Use either R or SAS to analyze the data.
 - (a) Compute means and standard deviations for all groups. Are standard deviations approximately the same for each scouring condition?
 - (b) Construct side-by-side boxplots for the response. Summarize any differences among the scouring conditions.
 - (c) Conduct an F test of $H_0 : \mu_{None} = \mu_{Shallow} = \mu_{Deep}$ versus $H_A : \text{At least one } \neq$. What is your p-value? What do you conclude if $\alpha = 0.05$?
 - (d) Test for pairwise differences using Tukey's method and summarize your results using a line graph or computer output.
6. 10.54