

Statistics 411/511

Homework 3

Due in Lab Monday and Tuesday, October 17 and 18

- **Homework Guidelines** Homework must be typed and stapled. Please 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. Exercise 27(a), page 81.
2. Exercise 33, page 83. Your carefully-worded sentences should discuss the scope of inference (see, for example, the top of page 62) and whether causality can be inferred.
3. The file `FastFoodFT.csv` contains the number of full-time employees in a random sample of fast food restaurants (specifically, Burger King, Wendys, KFC, and Roy Rogers) in New Jersey and eastern Pennsylvania. These data are excerpted from a study on the effect of increases in minimum wage. The study is reported in:

Card, David and Krueger, Alan. Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania. *The American Economic Review* 84.4 (Sept. 1994) 772-793.

The research question for this homework problem is, “what is the difference in the number of full-time employees in fast food restaurants between New Jersey and eastern Pennsylvania?”

- (a) Produce side-by-side boxplots of the number of full-time employees in the two states.
- (b) Perform a t-test to answer this question, and give a carefully-worded sentence reporting the answer.
- (c) Repeat the t-test, this time omitting the three largest data values. Does your answer change?