

STAT 113: HW1

Due Electronically via the RStudio Server Monday 02/28/22 by 11:59 P.M.

Last Revised February 22, 2022

SLOs:

A1: Identifying Cases and Variables in a Data Set

A2: Classifying variables based on measurement scale and role

A3: Identifying and distinguishing potential sources of sampling and measurement bias

Problems:

1. (SLOs: A1,A2) **Rowing Solo Across the Atlantic Ocean.** On January 14, 2012, Andrew Brown of Great Britain set the world record time (40 days) for rowing solo across the northern Atlantic Ocean. On March 14, 2010, Katie Spotz of the United States became the youngest person to ever row solo across the Atlantic when she completed it in 70 days at the age of 22 years old. Table 1.3 shows times for males and females who rowed solo across the Atlantic Ocean in the last few years.

Male times: 40, 87, 78, 106, 67

Female times: 70, 153, 81

- (a) How many **cases** are there in this dataset? How many **variables** are there and **what are they**? Is each **categorical** or **quantitative**?
- (b) Display the information in Table 1.3 as a dataset with **cases as rows** and **variables as columns**.

2. (SLO A2) In each of the following, a relationship between two variables is described. In each case, we can think of one variable as helping to explain the other. **Identify the explanatory variable and the response variable**, and whether each one is **categorical or quantitative**.
- (a) **Amount of fertilizer used** and the **yield of a crop**
 - (b) **Year** and the **world record time** in a marathon
3. (SLO A3) **Wearing a Uniform to Work.** The website `fox6now.com` held an online poll in June 2015 asking “What do you think about the concept of having an everyday uniform for work, like Steve Jobs did?” Of the people who answered the question, 24% said they loved the idea, 58% said they hated the idea, and 18% said that they already wore a uniform to work.
- (a) Are the people who answered the poll likely to be representative of all adult workers? Why or why not?
 - (b) Is it reasonable to generalize this result and estimate that 24% of all adult workers would like to wear a uniform to work?