STAT 217 – Quiz 24 (Choice of procedure)

Taken on Thur Mar 12. You may work with a group of as many students as you’d like, submitting one quiz with all names, provided that you all contribute to the work. You may use your notes.

Some of the statistical inference techniques we have studied include:

A. One-sample $z$-procedures for a proportion
B. Two-sample $z$-procedures for comparing proportions
C. One-sample $t$-procedures for a mean
D. Two-sample $t$-procedures for comparing means
E. Paired-sample $t$-procedures
F. Chi-square procedures for two-way tables
G. ANOVA procedures
H. Linear regression procedures

For each of the following research questions, indicate (by letter) the appropriate statistical inference procedure for investigating the question.

1. Can you predict a Cal Poly student’s GPA based on his/her high school GPA?

2. Did Cal Poly students get an average of less than 7 hours of sleep last night?

3. Are penguins tagged with a metal band less likely to survive than penguins not tagged with a metal band?

4. Is there an association between a person’s political viewpoint (liberal, moderate, conservative) and whether or not the person has made a financial contribution to charity in the past year?

5. Do customers at a restaurant tend to spend different amounts on their meal depending on whether classical, contemporary, or no music is playing in the background?

6. Do cows tend to produce more milk if their handler speaks to them by name every day than if the handler does not speak to them by name? A farmer randomly assigned half of her cows to each group and then compared how much milk they produced after one month.

7. Suppose that I take a random sample of 100 Cal Poly – San Luis Obispo students and record how many are wearing clothing today that mentions Cal Poly in some manner, and I ask a friend who teaches at Cal Poly – Pomona to do the same thing on his campus. We want to investigate whether the proportion of students who wear clothing that mentions Cal Poly differs between the two campuses.

8. Suppose that a baseball manager wants to investigate whether players run more quickly from second base to home plate if they take a wide angle or a narrow angle around third base. He recruits 20 players to serve as subjects for a study. He plans to have each of the 20 players run with each method (wide angle, narrow angle) once.

9. Do sentences in John Grisham’s novels tend to be longer or shorter than sentences in Michael Crichton’s novels?

10. Are more than 90% of Cal Poly students native-born Californians?