Quiz 7

This is a preview of the published version of the quiz

Started: Jan 8 at 1:40pm

Quiz Instructions

This quiz must be taken in person during the set time in class. If you take the quiz at some other time or outside of the classroom, then you may not earn credit for your answers/work.

Question 1 — 1 pts

(Objective 7a: Inference for Difference of Means of Numerical Variables)

A wildlife biologist wants to study wild turkeys from two different forests. Out of 31 captured turkeys from Forest A, the average weight was $\overline{x}_1 = 30.669$ pounds, with sample standard deviation $s_1 = 2.334$ pounds. Then out of 31 captured turkeys from Forest B, the average weight was $\overline{x}_2 = 32.141$ pounds, with sample standard deviation $s_2 = 2.129$ pounds.

Assume that the population variances are not equal and that df=59. (Also assume that $\alpha = 0.05$ for part 1.)

1. Test the hypothesis that the difference in average weight of turkeys between Forest A and Forest B, $(\mu_1 - \mu_2)$, is less than -0.3 pounds.
   - A. State the null hypothesis: $H_0 : \mu_1 - \mu_2 \geq$ [ ]
   - B. State the alternative hypothesis: $H_1 : \mu_1 - \mu_2 <$ [ ]
   - C. What is the p-value? (Round to 4 decimal places.) [ ]
   - D. What do we conclude?
     - Do we reject or fail to reject the null hypothesis? (Enter "reject" or "fail to reject".) [ ]
     - Do we have enough evidence to conclude that the difference in average weights of turkeys between Forest A and Forest B is less than -0.3 pounds? (Enter "yes" or "no".) [ ]
2. Find a 99% confidence interval for the the difference in average weight of turkeys between Forest A and Forest B. (Round each of the numbers to two decimal places, and wait until the end to round.)
   - [ ] , [ ]

Question 2

1 pts

(Objective 7b: Inference for paired Numerical Variables)

A company tests two different packagings for their product. They ask members of a focus group to rate how appealing each packaging for the product is on a scale of 1-10. A total of 25 focus group members were sampled. The file attached below is a summary of ratings for packaging A and ratings for packaging B.

Objective 7b Packaging Ratings.xlsx (https://canvas.uccs.edu/courses/151608/files/9025930?wrap=1) (https://canvas.uccs.edu/assessment_questions/5515596/files/9012310/download?verifier=uL2duppvJdVSPmMl8jlomww2XHg7ilJKuvvjy5RT&download_frd=1)

Let $\alpha = .01$ and test the hypothesis that the average difference in rating between packaging A and B is not equal to 0 points. (Assume μ_1 is the average rating for packaging A and μ_2 is the average rating for packaging B, and let $\mu_d = \mu_1 - \mu_2$.)

$$H_0 : \mu_d = 0$$
$$H_1 : \mu_d \neq 0$$

1. What is the p-value? (Round your answer to four decimal places.)
2. Should we reject or fail to reject the null hypothesis? (Enter "reject" or "fail to reject".)
3. Find a 99% confidence interval for the the average difference in the ratings for for Packaging A and Packaging B. (Round each number to two decimal places, and do not round until the final answer.)
   (,)

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