Test Canvas: M8 GW Submission: t-tests

The Test Canvas lets you add, edit, and reorder questions, as well as review a test. More Help

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Description	
Instructions	
Total Questions	9
Total Points	100

Select: All None Select by Type: - Question Type -

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Points: 5

1. Calculated Numeric: Report the p-value for the goodness o...

Question	Report the p-value for the goodness of fit test for the wing length data
Answer	0.187
Answer range +/-	0.08
Correct Feedback	0.1870 for anderson darling but shapiro wilks will give a similar result (to accept the null....data is normal)
Incorrect Feedback	0.1870 for anderson darling but shapiro wilks will give a similar result (to accept the null....data is normal)

Points: 5

2. Either/Or: Is your wing length data normally dis...

Question	Is your wing length data normally distributed?
Answer	✓ Yes No

Points: 5

3. Calculated Numeric: Conduct the appropriate test and repo...

Question	Conduct the appropriate test and report the obtained value for this test
Answer	-3.16
Answer range +/-	0.3
Correct Feedback	this is an independent 2 tailed t-test....variance is equal so we can use the pooled t-test
Incorrect Feedback	this is an independent 2 tailed t-test....variance is equal so we can use the pooled t-test option from the magic red triangle

Points: 5

4. Calculated Numeric: Report the appropriate p-value for th...

Question	Report the appropriate p-value for this test
Answer	0.002
Answer range +/-	0.004
Correct Feedback	wicked!
Incorrect Feedback	make sure you choose the p value for the prob > |t| for the two-tailed test.

Points: 5

5. Either/Or: Is there a significant difference bet...

Question	Is there a significant difference between the pesticide treated and control group wing length?
Answer	✔ Yes No

Points: 10

6. Short Answer: Is this difference meaningful? How do...

Question	Is this difference meaningful? How do you know?
Answer	YES, Cohens effect size = 0.67 diff/s (s is for the full data set - all observations of wing length) for a more conservative ES estimate. =26.92/40.179 = 0.67

Points: 15

7. Essay: Summarize: Write a concise one parag...

Question	Summarize: Write a concise one paragraph summary of this analysis.
Answer	We tested to see if there is a difference between butterfly wing length for those treated with pesticides and those not treated with pesticides. A pooled independent t-test indicated that there is a significant, and meaningful difference (t (78) = -3.17, p < 0.0022, CES = 0.67). The control group had longer wing length than the pesticide treated group, indicating that pesticides may have a significant impact on butterfly wing development.

Points: 25

8. Essay: Assume that we want to test to see if...

Question	Assume that we want to **test to see if there is a difference between butterfly wing length for the parents treated with pesticides (generation 1) and their offspring (generation 2)**. Notice that this uses the butterfly babies data set. Write a concise one paragraph summary of this analysis.

Answer

We tested to see if **there is a difference between butterfly wing length for the parents treated with pesticides (generation 1) and their offspring (generation 2)**. A 2-tailed matched pairs t-test, indicated that there is a significant, and meaningful difference (t(39) = -6.42 p<0.0001, Cohens Effect size = 1.02). Generation 2 had significant and meaningfully longer wing length than the parent generation indicating that the stunted growth impact of pesticides on wing development in pesticide exposed butterflies is not carried on to their future generations.

☐ **9. Essay: Assume that we want to test to see if...**

Points: 25

Question

Assume that we want to **test to see if these babies (generation 2) are smaller when compared to the larger population of butterflies in the wild.** Assume (population mean = 640 and population stdev = 30)

Look for keywords to figure out what type of test to run for this.

Write a concise one paragraph summary of this analysis.

Answer

We tested to see if the offspring of pesticide treated butterflies show stunted growth and differ significantly from the larger butterfly population. A 1-tailed, one-sample z-test indicated that there is a significant difference between these offspring and the larger population (z(39)= -1.6495, p = 0.0495). The pesticide treated offspring were indeed significantly smaller than the larger population, indicating that while there may be a recovery over the pesticide impacts to the parent generation, offspring are still stunted compared to normal butterfly development.

Select: All None Select by Type: - Question Type -

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