Lecture 14: Chapter 9 Mastery

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§9 Mastery

Say you construct a 90% confidence interval for a the difference of two means, i.e. for $\mu_1 - \mu_2$ and that the confidence interval is $(-0.5, -0.1)$, what can be said about the relationship between the two means? With what confidence can this statement be made?

Say you construct a 90% confidence interval for a the difference of two means, i.e. for $\mu_1 - \mu_2$ and that the confidence interval is $(-0.5, 0.4)$, what can be said about the relationship between the two means? With what confidence can this statement be made?

§9 Mastery

Say you construct a 90% confidence interval for a the difference of two means, i.e. for $\mu_1 - \mu_2$ and that the confidence interval is $(-0.5, 0.4)$, what can be said about the relationship between the two means? With what confidence can this statement be made?

What's the difference between standard deviation and standard error?

§9 Mastery

The weights of 40 people are measured before and after a diet program, and the difference between their pre-program weight and post-program weight is recorded. We want to test the claim that the mean weight lost is at least 2.1lbs. We conduct a 95% hypothesis test to test this claim and get a test statistic of -2.034. Does this support our claim or not?

§9 Mastery

What's the difference between μ_d and $\bar{d}$? When is μ_d the parameter under consideration as opposed to $\mu_1 - \mu_2$?

§9 Mastery

To test the hypothesis that the weight of a first-born twin is less than the weight of the second-born twin, would you consider μ_d or $\mu_1 - \mu_2$ in your null and alternative hypotheses?

§9 Mastery

When conducting a critical value hypothesis test for a claim about μ_d, what gets compared to the critical value?

- The Z-test statistic.
- The T-test statistic.
- The value set equal to μ_d in the null hypothesis.
- Any value that satisfies the inequality in the alternative hypothesis.
- The P-value.

§9 Mastery

Why must we require that there are at least five successes and five failures in each sample when conducting a hypothesis test concerning two proportions? What distributions are we actually comparing in these types of hypothesis tests?

You want to determine if the proportion of peas with adequate iron levels grown in water is less than the proportion of peas with adequate iron levels grown in soil. You sample 500 peas grown in water and 470 peas grown in soil. 45% of peas grown in water contain adequate amounts of iron and 45.2% of peas grown in soil contain adequate amounts of iron. Does this support the claim you wish to test or not?

§9 Mastery

Whether the average heights of longleaf pines and the average heights of loblolly pines are the same. You know that loblolly and longleaf pines vary in height by different amounts. A sample of 35 longleafs gives an average height of 75ft with standard deviation of 18 inches. A sample of 32 loblollies gives an average height of 75.1 feet with standard deviation of 11 inches. Do these samples support the claim that the average height of these pines is the same?