

**Raquel Shaffer**  
**Week #4**  
**Quiz**

**Question 1:** Explain what inferential statistics are. Provide a sample research question (from your thesis or from anything else) that could be answered with inferential statistics.

Answer #1:

Inferential statistics is the statistical analysis of data gathered from a sample to draw a conclusion about a population. In my study, that would be  $H_0$ , There is a difference between graduation class and a sense of belonging. As I gather data, I anticipate freshmen may have a lower sense of belonging than juniors.

**Question 2:** Compare and contrast a Type 1 and Type II error in statistics. Why do we want to avoid these?

Answer #2:

Type 1 error is rejecting a true Hypothesis, and Type 2 error is retaining a false Hypothesis. We want to avoid this statistical error because it affects the data negatively.

**Question 3:** How can one reduce the chance of a Type I error? Type II error? Describe a few for each.

Answer #3:

How to reduce a Type I error. As stated in Chapter 6, a Type I error is determined by the criterion level, and by changing the criterion level, it becomes less vulnerable.  $p < .05$  as a criterion is an acceptable risk. Using a two-tailed test can also reduce a Type I error.

How to reduce a Type II error. You can choose a less stringent criterion. The textbook gave the example of  $p > .06$  or  $p < .10$  Key factors found on page 205 to reduce the chance of a Type II error becoming a Type I error, you need more power. Strategies to increase power include increasing the sample size, having fewer errors in the design, and strengthening the effect.

**Question 4:** What is the difference between a one-sample and two-sample hypothesis test?

Answer #4:

The difference between a one-sample and two-sample hypothesis is that a one-sample t-test takes a sample of one population. A two-sample hypothesis test is taking samples from two different populations.