

Foundations for Statistical Inference on your research data

1. What variable are you going to use? Write the variable name and the English label.

Categorical	Continuous
-------------	------------

2. What is your effective sample size? (Number of non-missing values for that variable in your data set)

n=	n=
----	----

3. Calculate the point estimate for each variable.

Sample Proportion \hat{p}	Sample mean $\bar{x} = \text{mean}(\text{data}\$var, \text{na.rm=TRUE})$
-----------------------------	--

4. Calculate the standard deviation for each variable.

$s_{\hat{p}} = \sqrt{\hat{p} (1 - \hat{p})}$	$s_x = \text{sd}(\text{data}\$var, \text{na.rm=TRUE})$
--	--

5. Calculate the standard error (SE) for each variable.

$s_{\hat{p}}/\sqrt{n}$	$s_{\bar{x}} = s_x/\sqrt{n}$
------------------------	------------------------------

6. Calculate an approximate 95% Margin of Error (MOE) for your estimate as $2 \cdot SE$

$MOE =$	$MOE =$
---------	---------

7. Construct a 95% confidence interval for your estimate.

$(\hat{p} - MOE, \hat{p} + MOE)$	$(\bar{x} - MOE, \bar{x} + MOE)$
----------------------------------	----------------------------------

8. Interpret this confidence interval in context of your problem.

Categorical	Continuous
-------------	------------

9. Construct a testable hypothesis – using English words

Categorical	Continuous
-------------	------------

10. Based on your confidence interval generated in step 7 do you believe your research hypothesis will be supported? Explain why or why not.

Categorical	Continuous
-------------	------------