BIOL 121 Lab 1 Notebook Guide

Research Proposal

*The gray boxes are to be filled in by you. Some parts of the research proposal have already been completed.*

# Research Question: Relationship Between Two Variables

## 1. What is your research question? *...this is your “BIG question” about a potential relationship between the diabetes rate and another variable of your choosing.*

## **2. Conduct background research.** Background research has already been done for you and the data made available in the Diabetes Data Excel Sheet. Nothing to write here this time!

## **3. Construct a hypothesis.** What is your hypothesis? What is your H0? ...this is more specific than your research question. What relationship do you expect to see? Positive or negative?

*Hypothesis (H):*

*Null Hypothesis (Ho):*

## Why do think this may be the case? What is your rationale? Why do you expect to find the relationship you just predicted in your hypothesis? You can have more than one potential mechanism.

## **4. Test the Prediction/Design your experiment.** This is observational, based on existing data, in Unit 1.

## What variables do you have? Do you need an independent variable (IV) and a dependent variable (DV)? Should they be continuous or categorical/grouping? Label them as needed.

*You do not identify an IV and a DV for correlation tests, they simply test the relationship between variables. By convention, the variable most like a DV goes on the y-axis and the variable most like an IV goes on the x-axis. You can only do a correlation with two continuous variables. What does that mean?*

## What statistical test will you use to test your hypothesis? Will you need a one-tailed or two-tailed test?

## *A two tailed test tests for any type of relationship between variables, positive AND negative. For example, the diabetes rate and divorce are positively correlated or negatively correlated. A one-tailed test (which most of you will use) makes a more specific prediction and only tests for a relationship in the positive OR negative direction.*

How might you graph your data? What might they look like if you reject your H0?