**BIO 101 Module 1 Hands-On Activity**

1. (4 points) In order to understand the scientific method which you will be putting into action in this activity, you must read sub-section 1.3 A - C in our Hoefnagels text. Before you start to collect data in this exercise, please come up with a hypothesis based on what you think the effect of activity will be on your heart rate.
   1. Hypothesis #1:
   2. What would your dependent variable be in your experiment to test Hypothesis #1?
   3. What would your independent variable be in your experiment to test Hypothesis #1?
   4. What standardized variables will you try to control for in the experiment measuring your own heart rate? Name at least 3 variables.
2. (3 points) Please come up with a hypothesis based on what you think the effect of gender will be on resting heart rates.
   1. Hypothesis #2:
   2. What would your dependent variable be in your experiment to test Hypothesis #2?
   3. What would your independent variable be in your experiment to test Hypothesis #2?
3. (3 points) Please come up with a hypothesis based on what you think the effect of gender will be on post-activity heart rates.
   1. Hypothesis #3:
   2. What would your dependent variable be in your experiment to test Hypothesis #3?
   3. What would your independent variable be in your experiment to test Hypothesis #3?
4. (3 points) Please measure and record your resting heart rate in beats per minutes four times and calculate your average resting heart rate from those repetitions.
5. Rep 1:
6. Rep 2:
7. Rep 3:
8. Rep 4:
9. Average resting heart rate:
10. (3 points) Please measure and record your heart rate in beats per minutes after each of four episodes of stair- or curb-stepping and calculate your average heart rate from those repetitions.
    1. Rep 1:
    2. Rep 2:
    3. Rep 3:
    4. Rep 4:
    5. Average post-activity heart rate:
11. (4 points) Using the data from the entire class provided to you by your professor, please calculate the following values:
12. Total number of classmates:
13. Total number of female classmates:
14. Total number of male classmates:
15. Average resting heart rate for the entire class:
16. Average post-activity heart rate for the entire class:
17. Average resting heart rate for female classmates:
18. Average post-activity heart rate for female classmates:
19. Average resting heart rate for male classmates:
20. Average post-activity heart rate for male classmates:
21. (4 points) Please make a bar graph depicting the class data, remembering to put the independent variable on the horizontal axis, dependent variable on the vertical axis, labels on the axes, and a descriptive title. Create the graph in Excel by following the instructions for graphing provided in the assignment description.

Save your graph as Mod1\_Activity\_Graph\_Your Initials.xlsx, for example, *Mod1\_Activity\_Graph\_JS.xlsx*, and submit your graph as an attachment using the same submission link for this assignment.

1. (3 points) Were your hypotheses supported or not supported by the data? Why or why not? Please apply these questions to each of your hypotheses.

Hypothesis #1:

Hypothesis #2:

Hypothesis #3:

1. (3 points) What are your conclusions about heart rate and activity? Be sure to talk about all of the data that you collected.