***E370, Spring 2016***

***Lab Activities week of 01/18/2016***

***Valued at 25 points***

Solve the following problems. Please show your work to obtain full credit. For the problems you will need to make graphs in Excel. You will not be printing them to turn in, so please ***sketch*** each graph in the space provided after you are happy with it in Excel. Remember to label the axes with variable names, and include a title. Your sketch ought to reflect the answers you give to the various parts of the problems. The data sets required for this activity can be found in Oncourse under *Resources🡺Lab Manual Data* or in Box at [**https://iu.box.com/E370-Files**](https://iu.box.com/E370-Files) **in the folder Lab Manual Data Files.**

1. Open the data set **Deep Water Horizon.xlsx.**  This sample data set was collected by US Fish and Wildlife Service in 2010 to investigate how individual birds were affected by the Deep Water Horizon spill. The spill began on 20 April, 2010 in the Gulf of Mexico (25°N 90°W).
2. The variable Latitude represents the latitude where birds were observed. What kind of variable is Latitude? (2 points)
3. Which types of graphs are appropriate for the kind of data you answered in 1a? (Name all that are appropriate mentioned in your lab manual.) Briefly describe why you would select one of the graphs you mention over another. (4 points)
4. Create a histogram for Latitude such that the upper limit of 10 class intervals are 25.27, 25.91, 26.55, 27.19, 27.83, 28.47, 29.11, 29.75, 30.39, and 31.03. (The length of intervals are 0.64). Sketch it using the axes below. (Be careful about the labels, title, and general shape of your sketch.) (4 points)

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Based on your graph:

1. Which class contains the most observations? What reasons can you provide for this? (3 points)
2. The variable **Species** indicate the name of birds in the survey. **Oiling** indicates whether birds are contaminated by oil when observed.
3. What kind of variable is Oiling? Which graphical types are the most appropriate for this kind of variable? Why? (3 points)
4. Create and sketch a relative frequency pie chart of Oiling in the space provided here. (Remember to include title, frequencies, and use a legend to label your slices.) Which is the largest category? What is its relative frequency? (4 points)



1. We can see there is a large number of species and the frequencies are very different among different species. Which type of graph is the most appropriate to describe this information? Why? (3 points)
2. The following is the relative frequency pie graph of the variable Oiling for a particular bird, the “Black Skimmer”. What is the largest group? What can you infer by comparing the pie chart for all species (2b) and the pie chart below? (2 points)