Student Name: \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ SCORE: \_\_\_\_\_\_\_\_\_\_\_\_\_

This activity is worth 5 points. Use the data file “MARS4040-6040\_NecropsyAnalysis.xls” file and perform the analyses / figures using any graphing / stats program of your choice. This assignment is due, by email to [khyrenba@gmail.com](mailto:khyrenba@gmail.com) (use “MARS4040-6040 Necropsy analysis” as the title) by the end of October 25, 2016. Late submissions will be penalized 10% of the credit for each day.

1. Provide your assessment of your birds’ age and sex and conditions – based on your necropsy observations (sheet “’Data 2016”). Note: Use Whittow (1997) to compare your bird to adult measurements and explain what necropsy observations / criteria you used to justify the age determination (+1).
2. Using the 12 specimens (sheet “’Data 2016”), calculate 3 pair-wise correlations between the birds’ mass, the health score and the condition score. How well do they agree? Show the three scatterplots and report the correlation coefficients (+0.6).
3. Using the results of sections above (#1 and #2) provide a general description of your bird’s condition and health, compared to the other birds in the sample (sheet “Data 2016”) (+0.4).
4. Examine morphometrics (20 chicks – sheet “Morphometrics”): Report the pair-wise correlations (with excel or spss) between the seven morphometric measured you made (culmen length, bill depth, bill depth at base, tarsus length and wing chord and mass), using all 20 specimens in each correlation. Based on these analyses, explain which variables are correlated with each other (+1). Select one of these variables as a proxy for bird size to create an index of body condition – that accounts for the birds’ mass, given their size. (Hint: Go back to the lecture on morphometrics to see examples. Think of which variables are indicative of larger birds, and pick the variable that most strongly correlates with mass. Justify your answer (+0.5).
5. Develop an index of standardized body condition: Using the variable you identified above (in question #4), and a linear regression (with excel or spss), figure out the body mass deviations for each bird, given its size (i.e., is a bird heavier or lighter, given its size). Show the regression plot, the equation for the best-fit line and the r-squared (+1). Based on these deviations, identity (number) of the bird with the “best” and the “worst” body condition (+0.5).