Deck 7

* Test for differences between 2 samples
  + What could a t-test tell us about penguins
  + Shapiro test tests for normality within one group
  + Bartlett test tests for variance between two groups
  + For all these tests, a high p-value means you cannot reject the null hypothesis
    - small p-values allow you to reject the null hypothesis
  + t-test for nonparametric datasets is the Wilcoxon test
    - this is for when our assumptions for parametric tests aren’t met
    - also known as Mann-Whitney test
    - tests against the alternative hypothesis not the null
  + different types of tests
    - multiple linear regression
      * tests between more than 2 categories
    - ANOVA
      * One categorical predictor, not continuous
    - ANCOVA
      * Mixture of categorical and continuous predictors
* 1-Way Analysis of Variance (ANOVA)
  + Categorical predictor, 3 or more levels
  + Tukey Honest Significant Difference test (HSD)
    - Pairwise tests between all factor levels
    - Correction for multiple testing
* Multiple linear regression
  + Multiple regression elaborations
  + Mixture of categorical and continuous predictors
* N-way ANOVA
  + Categorical analogue of multiple regression
    - Main effects and interactions
* ANCOVA
  + Analysis of covariance
* Violations of our key assumptions
  + Most common is independent observations
    - Inflated confidence
  + Constant variance
    - Inaccurate measures of confidence/significance
  + Fixed x: no measurement error in our predictor variables
  + Normality: normality refers to the model residuals
* (multi) collinearity
  + If two predictors are correlated, they contain redundant information
  + Detecting collinearity is done by calculating the correlation coefficients