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Professor Nelson
Models 2 Assignment
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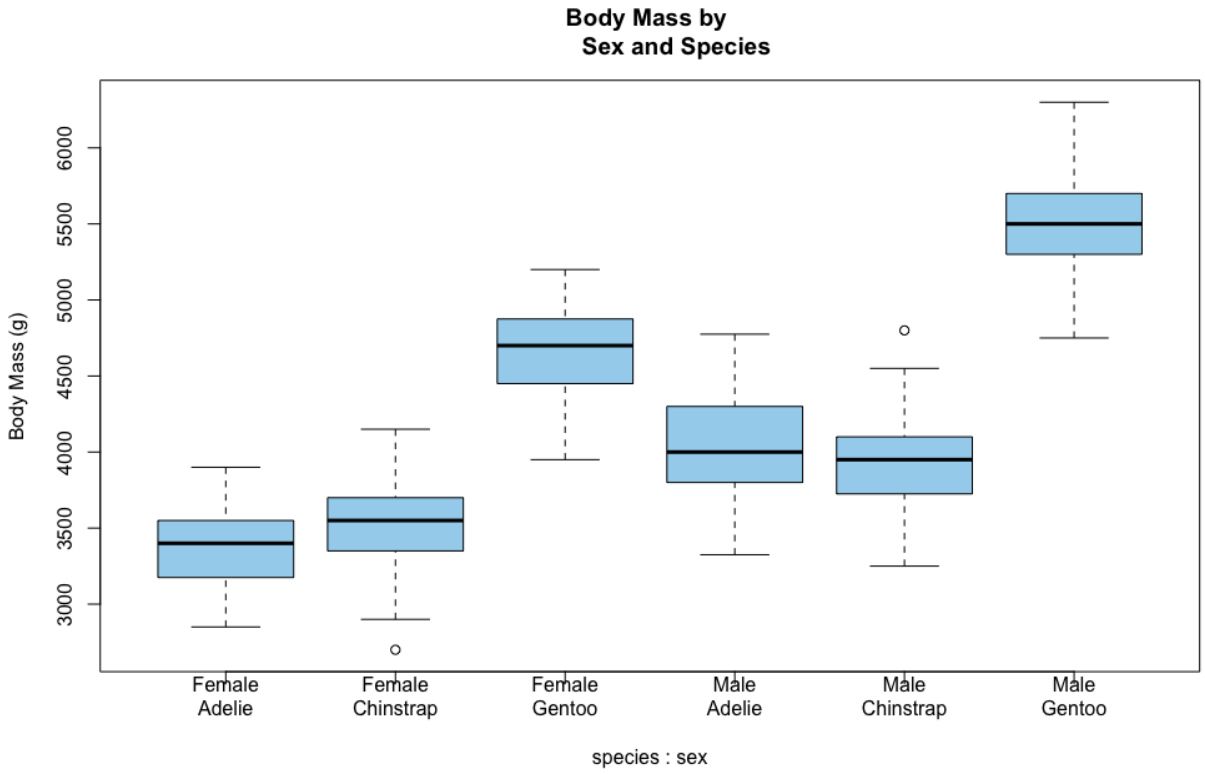
Q1. Conditional boxplot of penguin body mass, conditioned on sex and species.



Q2. Based on the boxplots, male penguins (of any species) are heavier than female penguins. Statistically, I would need to see more numerical values to determine if males are significantly heavier than females. However, when comparing each species specifically between male and female you are able to see that for each species, males appeared to have higher body masses, indicated by the boxplots being placed higher on the plot.

Q3. I think adding sex to a model that already includes species does improve the model fit. This is because by adding another variable to the plot, you are increasing homogeneity, thus making the models a better fit.

Q4. Code: fit_both = lm(body_mass_g ~ species * sex, data = penguins)

Q5. The base case for the two-way model that includes sex and species is female adelie penguins.

Q6. The two coefficients that you need to calculate the average mass of female Chinstrap penguins is the coefficient intercept and the coefficient “speciesChinstrap”.

Q7. The predicted average mass of female Chinstrap penguins according to this interactive model is 3527.21 grams.

Q8. The observed average mass of female Chinstrap penguins, calculated from the penguin data is 3527.206 grams.