You are wondering how the average flicker frequency varies with eye color. The data set that you have available to investigate this is at

http://www.statsci.org/data/general/flicker.html

Answer the following questions about this data set.

1. What are the individuals being measured?

2. What characteristic does each variable measure, and what variable type is each variable (numerical, categorical, logical, etc.)?

3. How were individuals sampled for this data set? In particular, are the observations in this data set made independently?

4. From what population are individuals randomly drawn in this data set? This population tells you the scope of inference, or how widely your statistical inferences will extend.

5. Which variables are random variables? What is the random process behind each random variable?

6. Make simultaneous density plots of the observed values of Flicker grouped by Colour, and explain what these density plots tell you.

7. What is the “true” model equation for a linear model that will allow you to conduct statistical inference to address your question of interest? Fit this model. What is the fitted model equation?

8. Report the results of an $F$ test that addresses your question of interest. In doing so, state what type of test you conducted, and for each test the null and alternative hypotheses, the distribution of the test statistic under the null hypothesis, the value of the test statistic, the significance level, the $p$-value, and what this means in terms of statistical significance.

9. Give a table that reports the results of Tukey post-hoc tests that address your question of interest. Explain clearly how the rows are labeled and what each column depicts. Use this table to state for which eye colors you found statistically significant evidence of a difference in average flicker frequency.