Week 8 Reading Questions:

Sonja Glasser

Q1

The main difference between a nonparametric model and a parametric model is that the nonparametric model cannot assume a distribution and because there is no information about the error distribution of the population. The nonparametric model can only describe patterns based on the sample itself and is considered to have low to no inference power. Ordinary least squares can be used to fit a model when there are little to no assumptions about the population uncertainty. In this way, a nonparametric model may use OLS and have minimal inference power. If the sample seems to follow a normal distribution, then one can assume that it came from a normally distributed population and therefore can use parametric inference methods based on maximum likelihood.

Q2

Interpolation makes prediction from within the measured range of data, while extrapolation makes predictions beyond the measured range of data.

Q3

Extrapolation should be done with caution and should only be completed when using a parametric model. This model must also be chosen with care because if the wrong model is chosen then the predictions can be very misleading. It is very important to use the correct parametric model so that the stochastic component of the model can inform the confidence interval for the predicted point estimate.