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Eco 602

Week 8 Reading Questions

Refer back to sections 7.1 and 8.2 for McGarigal’s descriptions of the form of the linear statistical model for the non parametric OLS and parametric likelihood-based inference techniques.

* Recall that he used the same data to illustrate both paradigms: Brown creeper abundance (response) and proportion of late successional forest (predictor).

Note: McGarigal specifies the parametric model using this notation:

Y∼Normal(a+bx,σ)Y∼Normal(a+bx,σ)

However, both the parametric and non parametric model can be expressed in the more familiar regression model format:

yi=β0+β1xi+eiyi=β0+β1xi+ei

1. Describe the key difference between the non parametric model (Ch. 7.1) and the parametric model (Ch. 8.1)

The key difference between the non-parametric model and the parametric model is how they deal with error. In a non-parametric model, the error and the probability distribution does not need to be detailed. In the parametric model, we include error and assumed to be normal and independent.

1. Interpolation and extrapolation may both be used to make predictions. What is the difference between interpolation and extrapolation?

The difference between the two is that interpolation predictions are within the measured range of the data taken and may fall between values that are known. Extrapolation prediction is predicted values of data points found outside of the measured range.

1. Explain why extrapolation has more pitfalls than interpolation?

Extrapolations can be used to predict future values of the data that you have found which can be useful, but it can also cause issues. Extrapolations has more pitfall because you are looking at data beyond what we know and have seen. If you select the wrong model or pick a different one you can get different prediction results. And since they are prediction, you cannot tell sometimes whether you findings are accurate or not which can effect results.