Bayesian Models: A Statistical Primer for Ecologists

Graduate Course
ECL 298 [3 units] – CRN 61700
Spring Quarter 2020
Monday & Wednesday 2:10-3:30 p.m.
Big Hannah Room, Asmundson Hall

This course is to deliver practical model-building and model-criticizing skills, to help students build intuition and raise their confidence in statistical modeling, and to make inferences from complicated ecological data. An essential part of the course is to teach how to construct accurate mathematical expressions for Bayesian models linking observation to specific hypothesis about how ecological systems work. We will cover logical foundations of Bayesian inference, causal inference, multilevel models, and model comparison. The course is meant to equip students with (1) the skills to engineer the model structure that is best for their research questions, conditioned on the status of data, and (2) the ability to evaluate, critique, and refine their models and use them responsibly. The principle audience is researchers in the natural and social sciences, who have had a basic course on regression but nevertheless remain uneasy about statistical thinking.

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