Methods in Experimental Ecology II (PCB 6468) Exercise 4 - Prior Distribution (*replaces non-linear models*) Due February 12, 2016



Thomas Bayes

1. Read the following two papers carefully (available on the class website):

*Ellison. 2004. Bayesian inference in Ecology. Ecology Letters 7:509-520.

*Morris *et al.* 2015. *The neglected tool in the Bayesian ecologist's shed: a case study testing informative priors' effect on model accuracy.* Ecology and Evolution **5**:102-108.

2. Summarize **both papers in one paragraph**, as if you were using their information to present a Bayesian approach in a paper.

3. Select a research question that you are interested in and propose a model for the relationship that you are testing. We recommend keeping it simple, for example a simple regression. Describe your hypothesis and the theoretical shape of the relationship that describes it.

4. Go the literature and find data that you can use to build prior distributions for your model.

5. Present the attributes of your prior as they would be defined in your model i.e the distribution and the parameters that define it.

6. Justify your selection, propose how this relates to your hypothesis and discuss how using an informative prior could help answer your research question.

Note1: There is no R work required this week but please don't forget to cite the source(s) of the data you used to build your prior!

Note2: Important cartoon below.....

