

Questions for the Course on Bayesian Modeling

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Below are sets of questions that you'll be graded on. In order to answer these questions correctly and pass the course you will find it necessary to work through the chapters that the questions pertain to.

Exercises Chapter 5

Print out your answers to these exercises and bring them with you next Monday. Before you concentrate on the exercises first work through chapter 5. Note: to get this exercise to work with JAGS requires that you put code in the data definition block. As the book says: "Using the zeros trick or ones trick in JAGS involves putting the assignment of zeros or ones inside the data definition block, rather than inside the model definition block."

1. List all distributions that WinBUGS (or JAGS) knows.
2. Look for a distribution that WinBUGS (or JAGS) does not know. For inspiration, see for instance <http://arxiv.org/pdf/1005.3274v1.pdf>.
3. Implement your distribution in WinBUGS (or JAGS) using the Poisson zeros trick. Advice: start with a very simple distribution, and look online for more information about the Poisson zeros trick. See for instance <http://users.aims.ac.za/~mackay/BUGS/Manuals/new-sampling.html>.
4. Now use WinBUGS (or JAGS) to fit your distribution to some data (for instance the `rt` data from the previous exercises, or data you generate in R yourself).
5. Check that this works using posterior predictives.