

## Graduate School Workshop on Hierarchical Linear Models

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### **Aims**

On completion, students should know how to:

- a) identify problems for which hierarchical linear models are appropriate
- b) interpret the results from Bayesian analysis in general and specifically from Markov Chain Monte Carlo (MCMC) Bayesian methods
- c) apply Bayesian methods (JAGS software) to analyse such data
- d) how Stan software can handle more complex problems

### **Organization**

Students must bring their own laptop (Windows, Mac or Linux are all fine), but do not need to pre-install any software as installation will be part of the workshop.

The workshop will be run in a small conference room. Students are welcome to bring their own datasets for exploration in the second session, but some datasets will be provided for everyone else to choose from.

### **Assumed knowledge**

Students will be assumed to already understand linear models well. I will provide a downloadable textbook in advance for those who need revision. Knowledge of using R is beneficial.

### **References**

JAGS manuals:

<https://sourceforge.net/projects/mcmc-jags/files/Manuals/4.x/>

JAGS examples:

<https://sourceforge.net/projects/mcmc-jags/files/Examples/4.x/>

JAGS software:

<https://sourceforge.net/projects/mcmc-jags/files/JAGS/4.x/>