

Getting Up and Running: JAGS in R

The following walkthrough is to help attendees of the workshop get JAGS up and running on their machine prior to the start of the workshop.

JAGS (Plummer, 2011) is Just Another Gibbs Sampler that was mainly written by Martyn Plummer in order to provide a BUGS engine for Unix. More information can be found in the excellent JAGS manual at <http://sourceforge.net/projects/mcmc-jags/>.

There are three prominent packages used to run JAGS via R.

- **R2jags** (Su and Yajima, 2012) is an R package that allows fitting JAGS models from within R. All most all examples in Gelman and Hill's *Data Analysis Using Regression and Multilevel/Hierarchical Models* (2007) can be worked through equivalently in JAGS, using R2jags.
- **rjags** (Plummer, 2013) is another R package that allows fitting JAGS models from within R. R2jags depends on it. Simon Jackman's *Bayesian Analysis for the Social Sciences* (2009) provides many examples using rjags, and so does John Kruschke's *Doing Bayesian Data Analysis* (2011).
- **runjags** (Denwood) allows some additional functionalities, including parallel computing.

We'll be using R2jags for the workshop.

INSTALLING JAGS and Packages

1. Install the most recent R version from the CRAN website: <http://cran.r-project.org/bin/macosx> or <http://cran.r-project.org/bin/windows>.
2. Mac users: Install the GNU Fortran (gfortran-4.2.3.dmg) library from the CRAN tools directory: <http://cran.r-project.org/bin/macosx/tools>.
3. Install JAGS version 3.4.0 from Martyn Plummer's repository: <http://sourceforge.net/projects/mcmc-jags/files/JAGS/3.x/>.
4. Start the Terminal (Mac) or Console (Windows) and type

jags

If JAGS is installed, you will receive the following message:

Welcome to JAGS 4.0.1 on Mon Mar 13 14:29:19 2017

JAGS is free software and comes with ABSOLUTELY NO WARRANTY

Loading module: basemod: ok

You can quit the Terminal/Console.

5. Within R, install the packages *R2jags*, *coda*, *mcmcplots*, *ggmcmc*, and *ggplot2*.