

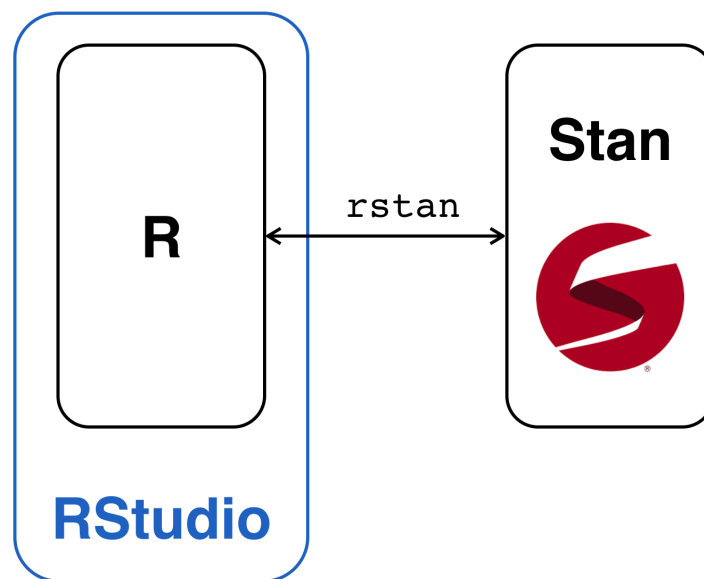
# Computer Set-Up

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## Rationale

For this course you will learn how to conduct Bayesian analyses for the scenarios that you will likely encounter throughout your research. There are two main programs that you will need to download to do this: **R**—the statistical software and environment, and **Stan**—a program for MCMC analyses using Hamiltonian Monte Carlo. We will also need to install an R package that allows R to talk to Stan (called **rstan**), as well as a nice interface program for R called **RStudio**. Instructions for the installation of these are below.

A diagram of how these are related to each other is below. R and Stan are two different programs that conduct different necessary steps of Bayesian analyses. The R package **rstan** allows these two programs to talk to each other. RStudio provides a nice, and more useful, interface to R.



## Installation

1. **Install the general programming language R.** Go to the [R web site](#) and install the latest version of R appropriate for your computer (Windows, Mac, Linux). You may be prompted to select an internet archive to get the package from; select a site geographically near you (e.g., Dalhousie University).
2. **Install the R editor RStudio.** R comes with its own built-in editor, but it is not very useful for dealing with long programs. Go to the [RStudio web site](#) and install the latest version of RStudio appropriate for your computer (Windows, Mac, Linux).

3. **Install the MCMC sampling program Stan.** Go to the [Stan web site](#) and install the latest version of **RStan** appropriate for your computer. Also, note that the Stan manual is extremely helpful (though quite dense), which can be found [here](#)
4. **Install the package that lets R talk to Stan.** Open RStudio and click on the “Tools” menu and then “Install Packages”. In the Packages slot type “rstan” without the quotes, or, if a menu of packages appears, select **rstan**. Then click “Install”.
5. **Mac users, install XQuartz.** R requires particular graphics functionality, and for this Mac users should download XQuartz from [here](#) and install.
6. **Let me know if you have any problems.** These instructions will likely become out of date as newer versions of programs and packages are produced. So, please help me keep these instructions up-to-date by letting me know of any problems that you encounter during the installation process.