

**PSY300 Computing Lab (PSY302X):**

Mon/Wed 5-6:15 PM

Quinn Hall 217 (Computer Lab)

Prof. Theodore Walls

Prof. Charlie Collyer

Text: Verzani, J. (2005). *Using R for Introductory Statistics*. Florida: Chapman & Hall/CRC Press.

Requirements: Attendance and short assignments that complement PSY300 work.

The use of modern statistical methods relies heavily on computer software to make both complicated data manipulation and computations easier. In behavioral scientific research, computer packages are routinely used to manage research data and complete analyses. Some typical packages include SAS, SPSS, and Stata.

In this course, we will use a package called *R*, which is an open source program for statistical computing. By integrating "packages" contributed by volunteer programmers in statistics and other fields, it enables computation of all of the basic statistical tests typically taught in undergraduate psychology through mid-level graduate training. You may simply download the program from the CRAN server, and then you go about downloading packages. Or, you may use *R* in the Quinn lab, where it has been installed on the computers in the lab.

We will also spend a little time looking at mainstream packages like SPSS and SAS, as at times it may be useful to know something about these, e.g. when working on research project or applying for jobs.

Prof. Theodore Walls:

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### *The case for R*

There are several advantages to using R. First, for instruction, the program runs from a more basic computing language, unlike the drop menu "graphical interface" oriented programs like SPSS and increasingly, SAS. Experience with R will enable you to develop programming skill that is transferable to a number of other programming needs that they may encounter. By contrast, reliance on graphical interfaces (which are also available for R, for example in the R-based commercial package, [S-PLUS](#)), seems to distance students from both the programming skill development and, often, from the statistical operations that they are implementing. Second, R is available worldwide, free of charge. Because of this, students who continue with statistical work in resource-limited settings after graduation can gain access to the program when they return to their home countries without paying relatively high purchase or licensing fees. Third, many new statistical models emerge first in R, and are only later implemented in packages like S or R (if at all). Many methodologists in fields outside of statistics, including quantitative psychology and econometrics, are increasingly developing methods in R. Fourth, for students who wish to go on to develop methods themselves or to simulate data for assessment of model efficacy in various circumstances, R is designed in a way that is easier to manipulate for this purpose.

If you need special accommodations due to documented disabilities please work with disabilities services at <http://autocrat.uri.edu/dss.html> Office of Disability Services, 330 Memorial Union, 401-874-2098 and keep Dr. Walls informed so that we may arrange reasonable accommodations.

# HOW TO INSTALL R

## Preparatory Steps:

- 1- You will be able to run the program if you are a Windows 95 (or later) user, or if you are a MacOS X (10.2. x and above) user. A full installation takes up about 50mb of disk space, so make sure your disk has enough space.
- 2- Connect to the internet and go to <http://www.r-project.org>
- 3- Click on DOWNLOAD-CRAN (left side of the screen). Once there, in the middle of the screen, you will be able to see some CRAN MIRRORS. You can use any of the mirrors or URL's, but try better one close to your home (USA).

## Download for Windows Users:

- 1- Once you choose the URL you are going to use, click it. Follow this sequence:

Windows (95 and later) → base → rw2011.exe (Set-up program) → Save (you can save it on your desktop, or in a temporary folder that you create). Then, wait. This may take a while, so be patient. → Open

## Set Up Process:

- 1- Select a language for the installation. → OK
- 2- On screen, you will see the presentation of the Windows Setup Wizard → Next
- 3- Accept the agreement. → Next
- 4- Make sure it shows this: C: Program Files\R\rw2011. This is the place where R will be installed (hard disk). → Next
- 5- A couple of boxes, each filled with a check mark ✓, appear there. You can fill the rest (in particular “PDF Reference Manual”) of the options as you desire → Next
- 6- An R appears on the screen. Leave it there. → Next.
- 7- It will be useful to have an icon on the desktop. Make sure that box is filled with a check mark → Next
- 8- Finish.

## Updating and Installing Packages:

- 1- Open the program. Go to “Packages” on the tool bar of the program, and check the “update packages” option, if any package is outdated. Select a CRAN Mirror (USA), and click “OK”.
- 2- Then, in “Packages”, go to the “install packages” option and the select the ones that may be useful for you (such as “UsingR”, which goes with our lab text by Verzani).

Other resources: Dalgaard, P. (2003). *Introductory Statistics with R*. Springer-Verlag New York, Inc. [www.uri.edu/faculty/walls/rsoftware.htm](http://www.uri.edu/faculty/walls/rsoftware.htm)

