



NONDETECTS AND DATA ANALYSIS

a Practical Stats Course

Instructions for installing R software on Mac OS

NOTE: PLEASE DO ALL 4 STEPS. Even if R is already installed, the packages below will need to be added if not already installed. Installing new versions of packages with an older version of R may cause problems, so it is best that the current version of R and packages are freshly installed even if an older version already exists on your computer.

1. **Install R.** Go to <http://cran.r-project.org/>. In the top box click on "Download R for (Mac) OSX". Under the Files: heading, click on the top link R-4.x.x.pkg, or whatever is the most recent version. After download, double-click on the package .pkg file to run the installer.

2. **Download and install R Studio.** Go to <http://www.rstudio.org/download/> and select RStudio Desktop. The website will determine what type of OS you are running and recommend the appropriate platform version. Once downloaded, install the software like any other on your system. *Optional:* Drag the icon for RStudio in the Applications folder to your Dock, to launch the program from there in the future.

3. **Install additional R packages.** R is modular – you install what you need. Double-click the RStudio icon to start RStudio. It will open and show four 'window panes'.

The screenshot shows the RStudio interface with four main panes:

- Environment:** Displays the current data environment. It lists several objects: `arsenic` (25 obs. of 3 variables), `atra` (24 obs. of 3 variables), `Atra.mle` (List of 11), `Atrazine` (48 obs. of 3 variables), `Golden` (27 obs. of 15 variables), `lognorm.mle` (List of 11), `Pollen_Thiamethoxam` (204 obs. of 3 variables), `t.normal` (List of 9), and `X2015_Pollen_Thiamethoxam` (204 obs. of 3 variables). The `Values` section shows a summary of the `comp.mean` variable: `num [1:10000] 0.0286 0.0199 0.0148 0.0188 0.0403 ...`.
- Files:** Shows the file explorer with a list of installed and available packages.
- Packages:** A list of installed and available packages. The 'Install' column shows the status of each package. The 'Update' column shows the version of each package.
- Console:** Displays the output of the R commands. The commands shown are:

```
> library("survival")
Loading required package: survival
Loading required package: npsurv
Loading required package: lme4
> library("Kendall", lib.loc="/Library/Frameworks/R.framework/Versions/3.5/Resources/library")
> install.packages("interval")
Warning in install.packages :
  dependency 'lme4' is not available
also installing the dependency 'MLEcens'

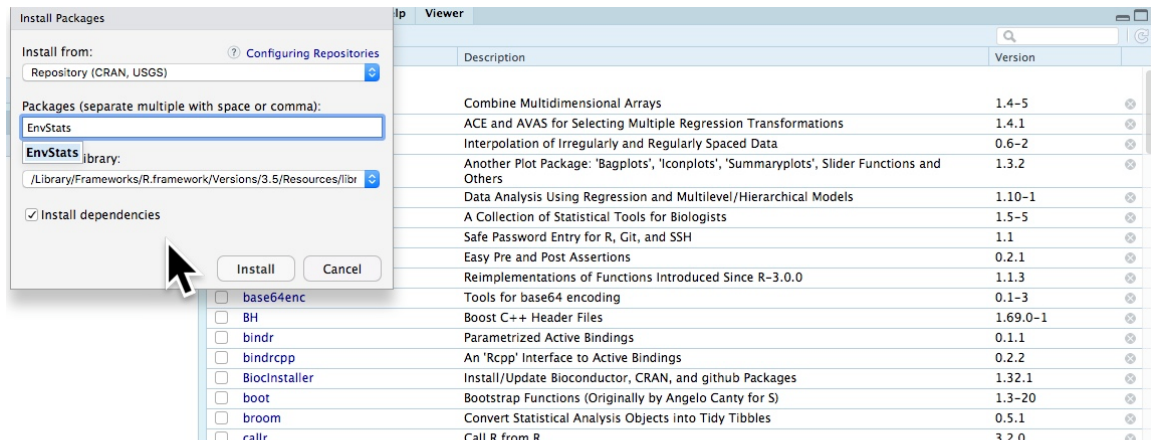
trying URL 'https://cloud.r-project.org/bin/macosx/el-capitan/contrib/3.5/MLEcens_0.1-4.tgz'
Content type 'application/x-gzip' length 160265 bytes (156 KB)
downloaded 156 KB

trying URL 'https://cloud.r-project.org/bin/macosx/el-capitan/contrib/3.5/interval_1.1-0.1.tgz'
Content type 'application/x-gzip' length 59595 bytes (582 KB)
downloaded 582 KB

The downloaded binary packages are in
  /var/folders/yz/1b1fpg115gbqz6scnjdqr0000gn/T//RtmpVafY1/downloaded_packages
> library("interval", lib.loc="/Library/Frameworks/R.framework/Versions/3.5/Resources/library")
Loading required package: perm
Error: package 'lme4' required by 'interval' could not be found
>
```

In the bottom right pane, click on the Packages tab. Click on "Install" under the tab row near the top of the window and enter the name of one of these packages.

bestglm	car	cenGAM	EnvStats
fitdistrplus	Kendall	mgcv,	multcomp
NADA	nlme	perm	rms
survminer	vegan	NADA2	



Make sure the "Install dependencies" checkbox is checked and click Install. Repeat for the other packages until each of the packages is installed. You may type more than 1 package at a time. Ignore any warnings in the lower-left console window that say that a package was previously installed. That's fine.

4. Check whether the installation is complete. You should see all of the packages in step 3 listed in the Packages tab. Click the checkboxes next to each of these packages. Those packages and the ones they depend on will then be loaded and ready to use.

Ignore any messages in the lower left RStudio window like "The following object is masked from". However, if a message in the lower left window states that a package was not found, such as

Warning in install.packages :

dependency 'perm' is not available

install the missing package as per instructions in step 3 (it may not be one of the packages listed in step 3 above, but another package that these depend on. Install it because it is needed for these to run). Then start this step again until all of the packages in step 3 are checked without a missing package warning.

You're done, and the R and RStudio installations are set for the course.

Questions? contact Dennis Helsel ask@practicalstats.com