

## Pre-Class Assignment (5%)

1. Install R. The file can be downloaded at: <http://cran.r-project.org/> /2
2. Install R Studio. The file can be downloaded at: <http://www.rstudio.com/products/rstudio/download/> /2
3. Install the following R packages (info on installing R packages found below).
  - Install sp /1
  - Install raster /1
4. Install two “potentially hard” R packages. This should be straightforward for most students. However, for some operating systems (e.g., Mac Mavericks), this can be quite challenging (see below for information on how to handle potential problems).
  - Install rgeos /2
  - Install rgdal /2

## Tutorials and R info for those that have never used R

Please familiarise yourself with R before the module.

R online tutorials (where you code R online):

<http://tryr.codeschool.com>  
<https://www.datacamp.com/>

Tutorial that is done from R directly:

<http://swirlstats.com/>

Webpage with R info:

<http://www.computerworld.com/article/2497143/business-intelligence-beginner-s-guide-to-r-introduction.html>  
<http://cran.r-project.org/doc/manuals/R-intro.pdf>  
<http://www.statmethods.net/>

## How to install packages

You can install R packages through R Studio. Click on the “Packages” tab on the right, then “install”, then type the name of the package, then click “Install”. You can also do it easily using the command line. For example to install the package sp, write in the console:

```
> install.packages("sp")
```

You can find more info at: <https://www.youtube.com/watch?v=u1r5XTqrCTQ>

### ***What to do if you have problems installing rgeos and rgdal***

If you can't install rgeos and rgdal easily you'll need to install the package from source. Before doing so, you'll need to install 3 required libraries.

### ***How to install the geos, gdal, proj.4 libraries***

If you're lucky, you'll be able to install the packages just like the two packages in question 3. But if you are using an unsupported operating system by rgeos and rgdal, you'll need to download the geos library for rgeos and the gdal and proj.4 libraries for rgdal. The 3 libraries can be found:

<http://www.kyngchaos.com/software/frameworks>

You can also download and find info on each library at:

<http://trac.osgeo.org/geos/>

<http://trac.osgeo.org/gdal/>

<http://www.gdal.org/>

<http://trac.osgeo.org/proj/>

### ***Options for Mac users.***

*Option 1. Using homebrew.* I sometime use homebrew to install libraries and packages that are hard to handle with Mac.

First, you need to install Xcode (free from the app store).

Second, you need to install homebrew, see:

<http://brew.sh/>

Third, you need to install gdal, geos, proj.4 using homebrew. See:

<https://github.com/Homebrew/homebrew>

A good starting point (after you got the Xcode app) is:

<https://www.youtube.com/watch?v=G6r46OhNlqw>

You can also find more info here

<http://matthewcarriere.com/2013/08/05/how-to-install-and-use-homebrew/>

*Option 2-3. Using the files downloaded from geos, gdal, proj.4 website or using MacPorts.* You can find info on how to install rgeos and rgdal for Mac OS Mavericks directly from website at: [http://tloc.h.r-forge.r-project.org/mac\\_rgeos\\_rgdal.html](http://tloc.h.r-forge.r-project.org/mac_rgeos_rgdal.html)

Note that MacPorts and homebrew are similar, see:

<http://stackoverflow.com/a/21375589/2870670>

You might need to uninstall homebrew to install MacPorts and vice versa.

### ***How to install an R package from source***

Once the 3 libraries are installed, you can install packages from source using the R command line. For example, you can install rgeos by writing in the console:

```
> install.packages("rgeos", type = "source")
```

If you are a windows user, you'll first need to install R tools. See:

<http://cran.r-project.org/doc/manuals/R-admin.html#The-Windows-toolset>