## Installing R and Rstudio (optional)

In this course we will be using a free statistical software package called RStudio. This is a very powerful software package that you will soon be fluent in. My goal is to have step by step videos and instructions for most of the RStudio work. In addition if you have any questions, please check the ["I need help now" link](https://globalonlineacademy.instructure.com/courses/36/discussion_topics/316) to answer any questions that you have.

The following video instructions are on how install the programs onto your own machine. Install both packages on your computer:

* This video is best for mac users (but works for any system): <https://www.youtube.com/watch?v=cX532N_XLIs>
* This video is best for windows users: <https://www.youtube.com/watch?v=eD07NznguA4>

## Introduction to R and RStudio Software (15min)

**Learn the Basics of Rstudio**

R and Rstudio are very powerful programs. Before we do any advanced programming, watch the following two video to learn how to do basic calculator type operations in Rstudio.

After watching these videos, the next assignment will instruct you to go to our Rstudio website and complete a short task in Rstudio.

* Getting started with R part I: [www.youtube.com/watch?v=UYclmg1\_KLk](http://www.youtube.com/watch?v=UYclmg1_KLk)

Notes: Doing basic calculations

* Getting started with R part II: [www.youtube.com/watch?v=2TcPAZOyV0U](http://www.youtube.com/watch?v=2TcPAZOyV0U)

Notes: Making vectors and matrices

## Working with Data in Rstudio (45 minutes)

We will often be working with large datasets that you will not want to individually type into RStudio. The following videos are very useful in describing how to import a dataset as well as how to calculate summary statistics in RStudio.

**Importing Data into R/RStudio:**

<https://www.youtube.com/watch?v=qPk0YEKhqB8&list=PLqzoL9-eJTNBDdKgJgJzaQcY6OXmsXAHU>

NOTES:

* categorical data are called factors in RStudio
* file.choose() is a very useful command
* commands typed in RStudio (which we are using for this course) also work in R. However, R does not have the nice pull-down menus that are in RStudio.

**Getting Started working with Data in R/RStudio, Part 1:**

<https://www.youtube.com/watch?v=U4-RnTW5dfw&list=PLqzoL9-eJTNBDdKgJgJzaQcY6OXmsXAHU&index=5>

Notes:

* This video is similar to the first, but provides a few additional options for importing data.
* Pay particular attention to how the data is imported at time 3:30 in this video. All the textbook datasets are already in Rstudio in CSV form.. To work with them, you will need to select “Import Data” in the Workspace window.

**Working with Variables and Data in R/Rstudio:**

<https://www.youtube.com/watch?v=1BcGnHwUT6k&list=PLqzoL9-eJTNBDdKgJgJzaQcY6OXmsXAHU&index=6>

Notes:

* Column headings (variables) are only recognized when you 1) Attach data or 2) use the “$” to identify which data set you want to look at {e.g. mean(DataSet$Heading) is use to find the mean}.
* Brackets are used to identify specific rows or columns {e.g. DataSet[1,] will list the first row and DataSet[,3] will list the 3rd column}.