Welcome to R and RStudio

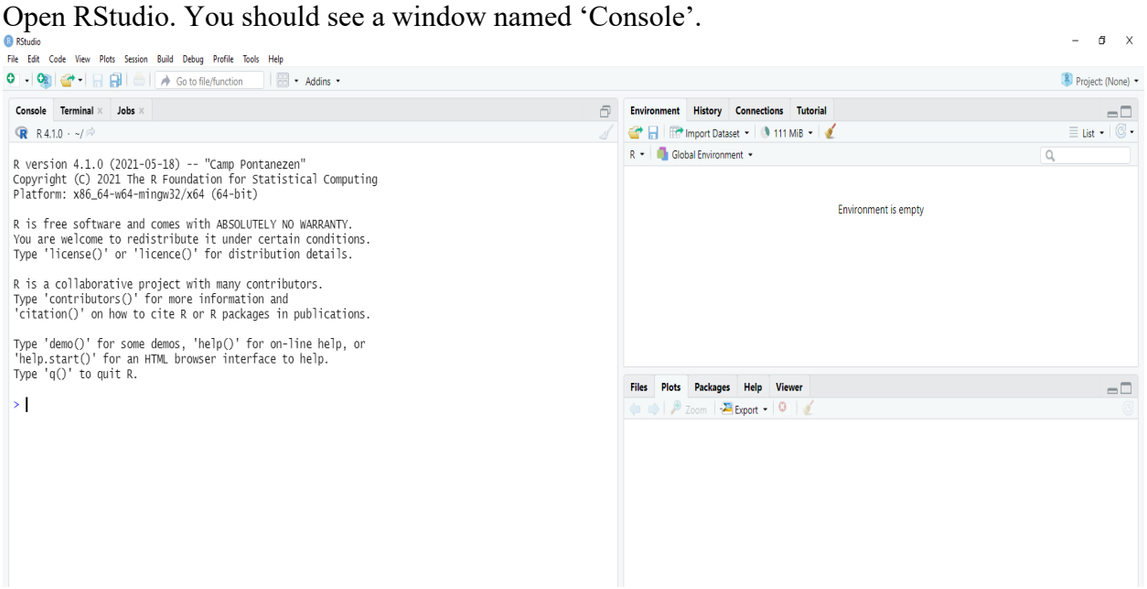
This course provides you the opportunity to learn data analysis skills that can be applicable in many fields. While there are many software available like Excel, R provides the most powerful, user-friendly, and cost-effective option available.

Words

R refers to the program and also refers to the code used. One would say, "…*programming in R*". **RStudio** is the software used to better visualize the R environment. One would say "…*I'm using RStudio to import the data*."

R environment

Open RStudio. You should see a window named 'Console'.



To get RStudio to do what we need it to, we need to provide it with commands. In the next few steps, we will define a data element, find the mean, minimum observation, maximum observation, and generate different visuals.

Example

Pretend we ask 25 local Gen-Zers how many cups (4oz) of coffee they drink per week. Below are their responses:

4, 3, 3, 5, 5, 5, 4, 6, 6, 3, 3, 5, 4, 5, 5, 3, 3, 6, 4, 5, 6, 5, 7, 5, 5

To store this data in RStudio, we need to create a *data array* that contains all 25 responses. In the Console, type the following:

x <-c(4, 3, 3, 5, 5, 5, 4, 6, 6, 3, 3, 5, 4, 5, 5, 3, 3, 6, 4, 5, 6, 5, 7, 5, 5)

*The arrow above '<-' are two separate characters: the less than symbol '<' and the hyphen '-'

Hit Enter. Nothing should pop up if you did it right and you should see the new variable defined in the **Environment** box in the upper left. You just created a *data array* named 'x' containing 25 numerical responses. Here, **<-** means 'store in' and ***c( )*** is a function that ***combines*** the data in a data array. By simply typing the name of the data array you created and hitting Enter, RStudio will display the contents of x… try it. Type x, and hit enter. Next, try the commands below:

Command	**Purpose**
mean(x)	Calculate the mean of the contents of x
sd(x)	Calculate the standard deviation of x
min(x)	Determine the minimum value
max(x)	Determine the maximum value
summary(x)	Displays a few descriptive statistics of x
hist(x)	Produces a histogram of x
stem(x)	Produces a stem and leaf plot of x
sort(x, decreasing=TRUE)	Sorts the values in x in decreasing order