

Symbol/function	Name	Description
Symbols		
>	Command prompt	Displayed in R console when R is ready to accept commands
+	Command prompt	Displayed in R console when command is incomplete and more input is required
<-	Assignment operator	Assigns a value/vector/list/dataframe to an object/variable [Alt + "-"]
#	Comment	Add notes/explanations in scripts which will be ignored by R
%>%	Pipe	Use output from 1 command as input in the following command [Ctrl + Shift + M]
Arithmetic operators		
+		Addition
-		Subtraction
*		Multiplication
/		Division
^ or **		Exponentiation
Logical operators		
<		Less than
<=		Less than or equal to
>		Greater than
>=		Greater than or equal to
==		Exactly equal to
!=		Not equal to
!x		Not x
x y		x OR y
x&y		x AND y
isTRUE(x)		Test if "x" is TRUE
Packages		
install.packages()		Install a package
library()		Load a package
General functions		
factor()		Create a factor with 1 or more levels
c()	Concatenate	Create a vector/list with more than one element
Importing/exporting data		
read.csv		Import data into R - strings are automatically converted to factors
read_csv		Import data into R - strings are NOT automatically converted to factors
write_csv		Export data from R as a CSV file
Inspecting your data		
length()		Determine the number of elements in a vector
class()		Determine the type of data, e.g. dataframe, numeric, character, integer, etc.
str()	Structure	Structure of an object and information about the class, length and content of each column
head()		View first 6 rows of a dataframe
tail()		View last 6 rows of a dataframe
dim()	Dimension	Get number of rows and columns of a dataframe
nrow()	Number of rows	Get number of rows of a dataframe
ncol()	Number of columns	Get number of columns of a dataframe
names()		Column names of a dataframe
rownames()		Row names of a dataframe
summary()		Summary statistics for each column of a dataframe
levels()		Check the level assignment of a factor
nlevels	Number of levels	Check the number of levels in a factor
ymd()	Year-month-day	Creates a date vector with categorical/factor data
paste()		Paste values from different columns together (e.g. year-month-day)

Symbol/function	Name	Description
Data manipulation		
select()		Select/keep specific columns from a dataframe
filter()		Keep/filter for specific rows in a dataframe
mutate()		Creates new column(s) based on values in existing column(s)
group_by()		Split data into groups in order to apply some analysis to each group
summarize()		Collapses each group into a single-row summary of that group
arrange()		Sort data according to a specific column
count()		Count the number of observations for each factor or combination of factors
spread()		Convert data format from long to wide
gather()		Convert data format from wide to long
Plotting		
plot()		Make a basic bar plot
ggplot()		Make an advanced plot (bar, pie, time series, stacked bar, etc.)
aes()	Aesthetic	Define mapping aesthetics by selecting variables to be plotted (x = column1, y = column2)
geom_xxxx()	Geometric object	Specifies which plot you want to make, e.g. geom_bar will produce a bar plot
facet_wrap()		Split one plot into multiple plots based on a factor in the dataset
theme_bw()		Set the background of the plot to white
theme()		Used to refine graph elements, such as removing gridlines, etc.
facet_grid()		Specify how you want your plots arranged (format: rows ~ columns)
labs()	Labels	Used to add a title and axes labels to a plot
grid.arrange()		Combine separate ggplots into a single figure
ggsave()		Export a plot from R in high resolution
Basic statistical functions		
abs(x)	Absolute	Calculates the absolute value of x
exp(x)	Exponentiation	Calculates e the the power of x
log(x)	Logarithm	Determines the natural lof of x
sqrt(x)	Square root	Determines the square root of x
sum(x)		Calculates the sum of x
mean(x)		Calculates the sample mean of x
median(x)		Calculates the sample median of x
var(x)	Variance	Calculates the sample variance of x
sd(x)	Standard deviation	Calculates the sample standard deviation of x
cor(x, y)	Correlation	Calculates the sample correlation between x and y
min(x)	Minimum	Calculates the minimum of x
max(x)	Maximum	Calculates the maximum of x
quantile(x, n)		Calculates the nth sample percentile of x
table(x)		Calculates the frequencies of the unique elements of the vector x