UQ Making Maths Matter 2026

Basic R functions

This sheet gives a summary of basic functions in R you can try. You can also get more information using `help()` or `?` in R. (Note that many of these are for *categorical* data but the toad data is all *quantitative*.)

Importing Data

Use `data = read.csv("file")` for CSV data and `data = read.delim("file")` for tab-separated data.

Use `View(data)`, `str(data)`, `names(data)`, `nrow(data)` or `head(data)` as checks that your data was imported correctly.

Use `data$X`, for example, to extract the variable `X` from the data frame `data`.

Use `data$Z = data$Y1 – data$Y2`, for example, to calculate a new variable.

Use `subset(data, X == "x")` to extract a new data frame with only the cases where `X` is `x`.

Use `data$X = ordered(data$X, c(A,B,C))` to make `X` an ordinal variable with `A < B < C`, for example.

Plots

Strip plots	`stripchart(data$Y)` or `stripchart(Y ~ X, data)`
Histogram	`hist(data$Y)`
Box plot	`boxplot(data$Y)` or `boxplot(Y ~ X, data)`
Scatter plot	`plot(Y ~ X, data)`; use `type="p"` for data points,`"l"` for joining with lines
Bar chart	`barplot(table(data$X))`
Spine plot	`spineplot(table(data$X, data$Y))`

Summary Statistics

Get basic statistics with `summary(data)`, `mean(data$Y)`, `median(data$Y)`, `sd(data$Y)`, `IQR(data$Y)`, and `fivenum(data$Y)`.

For categorical data use `table(data$Y)` or `table(data$Y, data$X)` for a two-way table. `prop.table()` can be applied to `table()` to get proportions and marginal proportions.

Use `aggregate()` to get statistics by group. For example, `aggregate(Y ~ X,data,mean)` gives the mean `Y` value for each category in `X`. This outputs a data frame which you can also use for plotting.

Use `cor(data$Y, data$X)` for the correlation coefficient.

Use `lm(Y ~ X, data)` to fit a straight line. Use `abline(a,b)` to add a line to a scatter plot.