R reference card, by Jonathan Baron

Parentheses are for functions, brackets are for indicating the position of items in a vector or matrix. (Here, items with numbers like `x1` are user-supplied variables.)

Miscellaneous

`q()`: quit
`<-`: assign
`INSTALL package1`: install package1
`m1[,2]`: column 2 of matrix `m1`
`m1[,2:5]` or `m1[,c(2,3,4,5)]`: columns 2–5
`m1$a1`: variable `a1` in data frame `m1`
`NA`: missing data
`is.na`: true if data missing
`library(mva)`: load (e.g.) the `mva` package

Help

`help(command1)`: get help with `command1` (NOTE: USE THIS FOR MORE DETAIL THAN THIS CARD CAN PROVIDE.)
`help.start()`: start browser help
`help(package=mva)`: help with (e.g.) package `mva`
`apropos("topic1")`: commands relevant to topic1
`example(command1)`: examples of `command1`

Input and output

`source("file1")`: run the commands in `file1`.
`read.table("file1")`: read in data from file1
`data.entry()`: spreadsheet
`scan(x1)`: read a vector `x1`

`download.file(url1)`: from internet
`url.show(url1), read.table.url(url1)`: remote input

`sink("file1")`: output to `file1`, until `sink()`
`write(object, "file1")`: writes an object to `file1`
`write.table(dataframe1,"file1")`: writes a table

Managing variables and objects

`attach(x1)`: put variables in `x1` in search path
`detach(x1)`: remove from search path
`ls()`: lists all the active objects.
`rm(object1)`: removes object1
`dim(matrix1)`: dimensions of `matrix1`
`dimnames(x1)`: names of dimensions of `x1`
`length(vector1)`: length of `vector1`
`1:3`: the vector `1,2,3`
`c(1,2,3)`: creates the same vector
`rep(x1,n1)`: repeats the vector `x1 n1` times
`cbind(a1,b1,c1), rbind(a1,b1,c1)`: binds columns or rows into a matrix
`merge(df1,df2)`: merge data frames
`matrix(vector1,r1,c1)`: make `vector1` into a matrix with `r1` rows and `c1` columns
`data.frame(v1,v2)`: make a data frame from vectors `v1` and `v2`
`as.factor(), as.matrix(), as.vector()`: conversion
`is.factor(), is.matrix(), is.vector()`: what it is
`t()`: switch rows and columns
`which(x1==a1)`: returns indices of `x1` where `x1==a1`

Control flow

`for (i1 in vector1)`: repeat what follows
`if (condition1) ...else ...`: conditional

Arithmetic

`%*%`: matrix multiplication
`%/%, ^, %%, sqrt()`: integer division, power, modulus, square root

Statistics

`max(), min(), mean(), median(), sum(),` var(): as named
`summary(data.frame)`: prints statistics
`rank(), sort()` rank and sort

`ave(x1,y1)`: averages of `x1` grouped by factor `y1`
`by()`: apply function to data frame by factor
`apply(x1,n1,function1)`: apply `function1` (e.g. `mean`) to `x` by rows (`n1=1`) or columns (`n2=2`)
`tapply(x1,list1,function1)`: apply `function` to `x1` by `list1`
`table()`: make a table
`tabulate()`: tabulate a vector

basic statistical analysis

`aov(), anova(), lm(), glm()`: linear and nonlinear models, anova
`t.test()`: t test
`prop.test(), binom.test()`: sign test
`chisq.test(x1)`: chi-square test on matrix `x1`
`fisher.test()`: Fisher exact test
`cor(a)`: show correlations
`cor.test(a,b)`: test correlation
`friedman.test()`: Friedman test

some statistics in `mva` package

`prcomp()`: principal components
`kmeans()`: kmeans cluster analysis
`factanal()`: factor analysis
`cancor()`: canonical correlation

Graphics

`plot(), barplot(), boxplot(), stem(), hist()`: basic plots
`matplot()`: matrix plot
`pairs(matrix)`: scatterplots
`coplot()`: conditional plot
`stripplot()`: strip plot
`qqplot()`: quantile-quantile plot
`qqnorm(), qqline()`: fit normal distribution