R Commands Summary

Basic manipulations

In & Out

```
q                       load                    help.search
ls                      dump                    library
rm                      source                  search
save                    history                 getwd
save.image              help                    dir
```

Manipulate objects

```
c                       apply/tapply/sapply     rep
cbind                   sweep                   which
rbind                   sort                    table
names                   seq
```

Object Types -- can use is.xx() and as.xx()

```
matrix                  factor                  logical
numeric                 character
```

Indexing:

x & y numeric vectors, z a factor vector, b a matrix or data frame

```
            x [ i ]  =  ith element of array
        x [ 1 :  n ] =  vector elements from 1 to n
 x[ c( 2 , 3 , 5 , 6 , 11 ) ] =  vector of elements nos 2,3,5,6,11
          x[ y <= 30] =  vector of elements of x with indices
                         matching the indices in y that are less
                         than 30
      x[ z == "male" ] =  vector of elements of x with indices
                         matching the indices in z that are
                         "male"
          b [ i , j ] =  element in ith row and jth column
            b [ i , ] =  vector of all elements in row i
            b [ , j ] =  vector of all element in column j
          b$colname   =  vector of column named "colname"
                         (only if b is a data frame)
```

Basic functions

Arithmetic, Logical, & Mathematical

+	!=	log10
-	<	exp
*	>	sin
/	<=	cos
^	>=	tan
% / %	is.na	asin
%%	&	acos
t	|	atan
crossprod	!	
==	log	

Summary Functions

sum	range	cor
mean	min	summary
var	max	quantile
sd	median	

Importing/Exporting Data

scan	read.csv	write.table
read.table	read.delim	attach
readLines	data.entry	detach

Common/Important Options for Bringing In Data:

header	file	which
skip	sep	na.strings

Navigating Directories Moving R Objects

save	load	setwd
save.image	getwd	

Probability Calculations

```
binom                    t                        wilcox
pois                     norm                     exp
f                        chisq
```

Prefixes for these probability functions:

```
d (density)
p (cdf)
q (quantile)
r (random generation)
```

Plots

```
plot                     x11()                    postscript
hist                     stripchart               pdf
boxplot                  par(mfrow=c(x,y))        jpeg
barplot                  par(mfcol=c(x,y))        bmp
matplot                  points                   dev.off
stemandleaf              lines
qqnorm                   legend
qqline                   abline
```

Common options on plots

```
breaks (hist)            las                      col.main
xlab, ylab               font                     col.sub
main                     bg                       cex
lty                      col                      mex
pch                      col.lab
```

Statistical Tests

```
help(package=ctest)      chisq.test               power.prop.test
prop.test                var.test                 fisher.test
binom.test               kruskal.test             mcnemer.test
t.test                   cor.test
wilcox.test              power.t.test
```

Important options on statistical tests

```
p                        paired                          var.equal
mu                       type
alternative              conf.level
```

ANOVA / Regression Commands

```
anova                    fit.contrast (gregmisc)  cut
aov                      TukeyHSD                 levels
lm                       factor / as.factor       fitted
residuals                gl                       predict
```

Useful R web pages:

```
Useful summary of commands by June Hill:
http://www.student.uwa.edu.au/~junehill/useR_00.html

Official R Website with Good Manuals:
http://www.r-project.org/

Various Labs on Elizabeth Purdom's website:
http://www-stat.stanford.edu/~epurdom/
```