**Note:** Everything in “< >” or the character “x” needs to be replaced.

Ex: file<filename> 🡪 file ILoveScience.txt.

The character “n” symbolise any number.

Commands in Linux and R are **cap-sensitive**.

**Linux Terminal**

|  |  |
| --- | --- |
| **Helpful Commands** | |
| **Command** | **Action** |
| CTRL C | Stops running current command |
| Arrow up/down | Look through previous commands |
| man <command> | Show manual for command |
| pwd | Print working directory |
| \* | Matches anything. Ex: \*.txt 🡪 any text file |
| ? | Matches a single character. Ex: p?.pdb 🡪 pi.pdb or p5.pdb **not** propane.pdb |
| q | Quit pages, including manuals and files. |
| whoami | ID of current user |
|  | |
| **Directory Commands** | |
| **Command** | **Action** |
| cd <directoryname> | Change directory |
| cd / | Go to root |
| cd .. | Go to the parent folder |
| ~ | Home directory |
| ../ | Parent directory |
| ./ | Current directory |

|  |  |
| --- | --- |
| **Viewing, Moving and Copying** | |
| **Command** | **Action** |
| ls  –l  –l \*.txt  –a  –S  –r | List Directory Contents  Long list (displays lots of info)  Long list of text files  Show all  Sort by size  List in reverse the order |
| Note: Can combine list commands. Ex: ls –lr 🡪 Long list but in reverse order | |
| **Viewing, Moving and Copying (continued)** | |
| **Command** | **Action** |
| wc <filename> | Word count. Prints number of lines, words, bytes and file name |
| wc -l <filename> | Prints number of lines and file name only |
| file <filename> | Prints file type |
| cat <filename> | Shows file content |
| head <filename> -n | From the top. “n” is the number of lines printed |
| less <filename>  Spacebar  p  /<search\_term>  q | Display file one page at a time.  Next page  Previous page  Searches file  Quit file |
| rm <filename> | Removes files |
| rmdir <filename> | Removes an empty directory |
| mkdir <filename> | Make a new directory |
| mv <filename> <directory>/ | Move file/directory into new directory |
| cp <filename> <newfilename> | Copy and rename new file |
| cp <filename> <directoryname>/ | Copy into new directory |
| grep <x> <filename>  –n <x> <filename>  –i <x> <filename>  –v <filename> | Search pattern in file. Where “x” is a search term  Displays line numbers  Revokes case-sensitive search  Inverts the matches |
| find . –type d  –type f  –name <filename>  –name \*.txt | Search for a directory  Search for a file  Searches the file names  Searches the text file names |

|  |  |
| --- | --- |
| **Sorting & Piping** (the pipe symbol “|” is on the keyboard above the enter key) | |
| **Command** | **Action** |
| sort –n <filename> |  |
| command\_a | command\_b | command\_a’s output becomes command\_b’s input |
| command\_a > file.txt | command\_a’s output is written to a file called file.txt |
| command\_a < input.txt | command\_a gets the input from a file called input.txt |

**R Environment**

**Note:** R is launched from the Linux terminal in this workshop.

The syntax and notations can be different. For example the command-line starts with “>”in R environment.

|  |  |
| --- | --- |
| **Helpful Commands** | |
| **Command** | **Action** |
| R | Enter the R environment from Linux |
| dir() | Show files in the current directory |
| help(topic) | Documentation on topic |
| q() | Quit the R environment |
|  | |
| **Input & Output** | |
| **Command** | **Action** |
| a <- 1 | Assigning a value (suggested) |
| b = 2 | Assigning a value |
| x = c(1, 2, 4, 8, 16 ) | Creates a data vector with specific elements |
| y = c(1:10) | Create a data vector with elements 1-10 |
| library(x) | Loads an add-on packages |

|  |  |
| --- | --- |
| **Input & Output (Continue)** | |
| **Command** | **Action** |
| read.table(<filename>, header=TRUE) | Reads a table in several table formats |
| read.csv (<filename>, header = TRUE, ep = ',') | Read in comma delimited (CSV) data or table |
| write.table (x, file ="<filename>", row.names = TRUE, col.names = TRUE,  sep = " ") | Write tabular data in many formats |
|  | |
| **Indexing** | |
| **Command** | **Action** |
| which(x) | Find elements of a vector that satisfy a condition is.element() |
| length(x) | Get the length of a vector |
| dim(x) | Get or assign the dimensions of a matrix, data frame, or array ncol() |
| nrow(x) | The number of rows in a matrix |
| colnames(x) | Get or assign column names of a vector |
| names(x) | Get or assign the column names of a data frame or object names of a list |
|  | |
| **General plotting functions** | |
| **Command** | **Action** |
| plot() | Scatter and line plots |
| pdf() | Create the figure as a pdf file (also jpeg, postrscript, etc) |

For more information please or commands please refer to the R Reference Card at http://cran.r-project.org/doc/contrib/Short-refcard.pdf