More information: https://goo.gl/TECDlf and https://goo.gl/ljs6et

Introduction to the Unix Command Line

General tips

- Uppercase and lowercase letters are different: A file called `thesis.txt` is different from `Thesis.txt` and `tHeSiS.tXt`
- Depending on the terminal/ ssh client you are using you might be able to copy-paste from one window to another
- Press the up and down arrows on your keyboard to cycle through previous commands
- Tab will autocomplete file/directory names when typing commands
- Be careful with spaces when writing commands - spaces should separate each option or argument

Get some starter files:
git clone https://github.com/callaghanmt/shell-training.git

Basic navigation commands

Command	Purpose
`ls`	list contents of the current directory (except hidden files)
`ls -a`	list all contents of the current directory
`ls -l`	long-form list of contents, showing file properties
`ls <path>`	list contents of specified directory
`pwd`	print working directory (full path)
`cd <path>`	go to specified directory
`cd ..`	go up one level to parent directory
`cd ~`	go to current user's home directory

File and directory management

Command	Purpose
`mkdir <new-directory>`	create a new directory
`mkdir -p abc/123`	create two directories: one called `123` inside another called `abc`
`cp <file-name> <new-file-name>`	create a copy of a file with a new name
`cp <file-name> <path>`	copy a file to another folder
`cp <file-name> <path>/<new-file-name>`	create a copy with a new name in another folder
`mv <file-name> <new-file-name>`	rename a file
`mv <file-name> <path>`	move a file to another folder
`rm <file-name>`	delete a file
`rm -r <directory>`	delete a directory and all of its contents
`nano <file-name>`	open a new or existing file in a simple text editor
`chmod ug+x <file-name>`	give user and group execute permission for a file

Inspecting file contents

Command	Purpose
`cat <file-name>`	print the contents of a file to the screen
`less <file-name>`	opens file contents for inspection, allows scrolling, type q to quit
`head -5 <file-name>`	prints first 5 lines of a file
`tail -3 <file-name>`	prints last 3 lines of a file
`sdiff <file-name> <file-name>`	visualise and compare two files side by side

Wildcards

Command	Purpose
`ls *.txt`	list all files ending in `.txt`
`ls ???`	list all files with names exactly three characters long
`ls [abc]*`	list all files beginning with a, b or c

Output redirection and piping

Command	Purpose
`echo "Some text" > a-file`	send standard output of a command to a file (overwrites existing content)
`echo "Some text" >> a-file`	append standard output of a command to the end of a file (no overwrite)
`ls | sort`	pipe standard output of a command to another command

Variables, sequences and loops

Command	Purpose
`VAR1=hello`	create a variable and set its value
`echo $VAR1`	print the value of VAR1
`FILENAMES=$(ls)`	save the output of a command as a variable
`SUM=$((2 + $TWO))`	perform integer arithmetic with variables
`seq 5 10`	print a sequence from 5 to 10
`seq 1 2 9`	print a sequence from 1 to 9 with a stride of 2
`seq -f %03g 1 2 9`	print a sequence padded with zeroes to the left
`for i in $(seq 1 5); do echo iteration$i; done`	loop through a sequence and repeat for each value
`for ((i=1; i<=5; i++)); do echo iteration$i; done`	alternative method for looping through a sequence