Tutorial: Introduction to Linux/Unix and the HPC environment at NYU

Before we start

Session 1: Everything is somewhere - hosts, networks and filesystems

Session 2: The computer as a nut - using Unix commands
Session 2

Using the Unix command line

Learning to speak - using the language of the shell
  - Pathname expansion
  - Variable expansion
  - Lists
  - Preventing expansion
  - Pipeline s and redirection
  - Subshells

The environment

Shortcuts

Editing text files
  - Vim
  - Emacs

Writing scripts
  - File permissions and Access Control
  - Lists

Summary

Exercise

Cheat sheet

Good tutorials on the web

Some useful references

There are some good tutorials for the Linux and the shell at LinuxCommand.org. And a good quick reference at FreeEngineer.
Summary

The computer is like a nut. **The shell is the outside layer and it provides an interface for interacting with the programs and commands** - the meat of the operating system.

Through the command line, the shell provides a language for expressing what it is you want to do. By joining simple programs together in a few simple ways, you can perform an astonishing range of tasks. Moreover, **these tasks can be scripted**.

The shell is full of shortcuts - tab-completion, aliases, history, variables, wildcards. As you build up a repertoire of commands and shortcuts you will find that by working in the shell you can be far more productive that a GUI can allow.

But you don't need to be an advanced user to use the shell - just a few basic commands will get you a long way. Some key commands to remember are:

- `man` - show the manual for something
- `less` - display something one page at a time
- `which` - find where a command comes from

Exercise

Now that you have met the shell, if you have an account on NYU HPC, **setup your workstation for SSH tunneling**. This will be useful for Tutorial 2.

Once you have an SSH tunnel you might want to skip back to Moving files to and from the HPC clusters

Next: Session 3: Preparing and running jobs