-------------------------------------- Unix --------------------------------------

You need to know about a dozen commands to function in any operating system. Unix commands are short and mnemonic and very natural. Most of them take various -flags to modify their action. You can use

     alias newname something   to name "something" to "newname".

e.g. alias cp 'cp -ip' . All aliases and customizations may be placed in your .cshrc file. In general,

       command -h   shows the usage (syntax)

       man command will tell you more than you need!

Here is a list of the essential commands [and useful aliases]:

 logout = log off the machine

 ls = list [alias l 'ls -FC'], [alias dir 'ls -lF * | more']

 cp f1 f2 = copy file f1 to file f2   [alias cp 'cp -ip']

 mv f1 f2 = move (rename) f1 to f2   [alias ren 'mv -i']

 rm = remove (delete) [alias rm '/bin/rm -ir'], [alias del /bin/rm]

 lpr f1 = print file f1

 more f1 = display file f1 page-by-page

 mkdir d1 = make directory d1   rmdir d1 = remove directory d1

 cd d1 = change directory (into d1)

 man command = manual (help) on command

 vi = visual editor (the standard Unix editor, see below)

 chmod = change mode of file (set permissions)

 telnet = log on to another machine

 ftp = file_transfer_protocol, transfer files between machines

 ~ refers to the home dir, **.** to current dir, **..** to parent dir

There are hundreds of other commands/tools, do: xman to see them.

------------------------------------- vi editor -------------------------------------

 vi filename   starts vi on the file, you'll be in command mode

 ZZ   save and exit   :q! quit (exit) without saving

 :w   write (save contents of buffer)

 h, j, k, l   move cursor left, down, up, right

    H   to top of page   L   to bottom of page

    ^F   page forward   ^B   page backward

    1G   to top of file   G   to bottom of file

    i   insert   ...ESC   a   append (after cursor) ...ESC

    o   open new line...ESC   O   open line above cursor...ESC

    r   replace character   R   replace(overwrite) until ESC

    cw   change word...ESC

x delete character   dw delete word   dd delete line

 yy   yank line   p put yanked line below current line

 3yy yank 3 lines   p put yanked lines below current line

There are many more commands and customizations, but these are the most essential. The (free) **vim** editor can be installed in Win.

------------------------------------- Zip / Unzip -----------------------------------

Best compress/archive utility. zip -h , unzip -h show the options.

I use the following aliases:

    alias zp   'zip -oyz'   #preserve date, ask for comment

    alias zpm   'zip -oyz9m'   # also -m: delete zipped files

    alias zpmr   'zip -oyz9mr'   # also -r: recurse into subdirectories

    alias zl   'unzip -l'   # list zipped files

    alias uz   unzip

------------------------------------- X Windows ------------------------------------

Each window is an xterm, emulating a terminal. A window manager (such as kde or gnome) manages all the windows and the mouse. Can be customised. The greatest thing about X is that you can run on a remote machine and display its output on your screen ! We'll learn how...

------------------------------------- Compiling -------------------------------------

gfortran code.f compiles Fortran code.f and produces executable a.out

 gcc   code.c compiles C code.c and produces executable a.out

------------------------------------- Run a code -------------------------------------

In your code use: read* to read values from standard input

       print* to write values to standard output

The standard input/output device is the screen, unless redirected, e.g.

  a.out   will read and write to the screen, but

  a.out < dat   will read from "dat" and write to screen,

  a.out < dat > out   will read from "dat" and write to "out".

------------------------------------- Plotting -------------------------------------

Simplest, nicest, powerful (and free) plotting tool ever is: gnuplot

Start gnuplot with: gnuplot, then do: help plot , help set

Everything is on line, nothing to remember !!! Try this:

    gnuplot> plot [-4:4] sin(pi*x), cos(pi*x/2) with points

You can get a win version for your PC from

    http://ftp.gnuplot.info/pub/gnuplot/

------------------------------- Exploring the Internet ----------------------------

Web browsers (Chrome, Firefox, IE, etc) are amazing pieces of software that have caused the explosive growth of the Internet since 1993. Access the WWW page for this course (XXX=course number):

    http://www.math.utk.edu/~vasili/XXX/