

How to get help on unix:  
 man <command-name> Get full description of command  
 man -k <keyword> List commands mentioning keyword in title

Logging in and out:  
 logout Terminate session  
 exit Terminate current "shell"  
 ssh <remote host> Login securely to a remote host

File manipulation:  
 emacs <file> Edit a text file (see "cheat sheet")  
 mv <old> <new> Rename/move <old> file to a <new> name  
 rm <file(s)> Delete file(s) from system  
 cp <orig> <duplicate> Copy <orig> to file named <duplicate>  
 sftp <remote host> Secure batch file transfers between mach's  
 scp host:<orig> host:<dup> Securely transfer files between machines  
 cat <file> Display/catenate file contents to screen  
 more <file> Display file, page by page (but: use less)  
 less <file> Display file, page by page (avoid more)  
 head <file> Display the first few lines of a file  
 tail <file> Display the last few lines of a file  
 grep <pattern> <file(s)> Search for/display pattern within file(s)  
 source <file> Read commands from <file> (also: . <file>)  
 turnin -c <course#> <file> Turn in a copy of file under CS course #  
 (on upstairs unix boxes) e.g. turnin -c 237 x.c

Directory manipulation:  
 cd <directory> Change focus of session to files in directory  
 ls List files in current directory  
 mkdir <name> Make a new subdirectory, called <name>  
 rmdir <name> Remove an empty subdirectory

Printing & Mail:  
 enscript <file> Print a pretty copy of file in unix lab  
 enscript -d lw-cs-217a <file> Print a pretty copy of file to max lab  
 firefox <url> Open browser (under X11) at url  
 acroread <acrobat file> Read a ".pdf" file with Acrobat reader  
 gs <postscript file> Read a ".ps" file with "ghostscript" reader  
 lynx Text-only (read: fast) browser

C:  
 gcc <file.c> Compile C program into "a.out" executable  
 gcc -o <executable> <file.c> Compile C program into executable  
 gcc -g -c <file.c> Compile C into debuggable object file <file.o>  
 gcc -o <exec> <f.o> <g.o> Link several object files together into exec  
 gdb <executable> Run executable under debugger control  
 gdb <executable> <core> Resurrect core file with executable as model

Information about users and systems:  
 w Who's on the system  
 top What are top cpu processes  
 ps List processes on this system  
 whoami Who is logged in at this window  
 finger <user> Get details on user (or user@host)  
 last <user> List last time(s) user used this machine  
 uptime Print stats on machine, also time since boot  
 sign Change message on 312 sign

Web:  
 http://www.cs.williams.edu CS home page  
 http://www.cs.williams.edu/~<yourname> Your home page (put stuff in ~/www)  
 http://www.cs.williams.edu/cgi-bin/showtop10 Unix disk hog list  
 https://www.cs.williams.edu Secure web-based email

CS Machines (9/07, see: <http://www.cs.williams.edu/systems/comps/comps.html>):  
 amerifax angus ayrshire barzona beefalo brahman brownswiss corriente  
 devon dexter droughtmaster durham galloway guernsey guzerat hereford  
 holstein jersey longhorn montbeliard pinzgauer remus senepol shaver

- Walk away from the machine. Don't waste your time in front of a machine if you're not making any progress. Print a listing and walk away. Make and take a friend with you. Life will be better if you reconsider the situation without the pressure of a computer.
- Read the man pages. Realize, if you haven't already, that you don't know everything. Learn. The world travels about 66,600 miles an hour about our Sun, and the Sun glides gracefully along its own path dragging us along. Hackers have no impact. None.
- Learn the emacs keystrokes. It will save you when you have to use a system whose mouse is not working. Avoid the "arrow keys". Why?...
- Use emacs keystrokes in the shell. Many cursor manipulation keystrokes from emacs recall history in the "bash" shell:  
 ^P = previous command, ^N = next command,  
 ^R = search for command from the past by typing a few letters  
 ^A = go to beginning of command line  
 ^E = go to end of command line  
 ^B = go back one character  
 ^F = go forward one character  
 ^D = delete this character  
 <del> = delete previous character
- Learn about your environment. Shells like "bash" have survived evolution by helping their users do complex things. Type:  
 man bash  
 Good things to keep an eye out for are "aliases" and "shell scripts". Other things to read about: find, tar, gawk, perl.
- Forward your mail to one address. On unix machines you want mail forwarded from, create a file ".forward". This file should contain a single line with your ideal address. WARNING: don't forward mail back-and-forth between two systems. Your email address with us is of the form 82dab@cs.williams.edu
- Stay organized. Create directories to organize your belongings. Delete temporary files that you no longer need. Besides taking up space, they add friction to your life.
- Use the facilities we provide. Using our labs allows us to help you if you have problems. They're also a good place to meet others that are suffering the same project. Leaving your room to do your work makes it a nicer place to return.
- Practice. Yes, even more.
- Write. Good writing is hard, and computer scientists write far too little real prose. A good, small place to start: comments on your code. Another place: write your name on everything you do. If it's really yours, copyright it (it's free)!

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 See?

## Duane's quick reference card for Emacs

C-z means: hold Control and z at same time.

M-x means: type escape \*then\* x, or: Meta \*and\* x.

### Starting Emacs

start emacs emacs

### Exiting Emacs

Suspend emacs C-z  
exit emacs C-x C-c

### Files

read file C-x C-f  
visit file other window C-x C-v  
save file C-x C-s  
insert file C-x i  
write buffer to file C-x C-w

### Getting help

first time users C-h t  
second time users C-h ?  
help on keystroke C-h k  
help on function C-h f  
man page M-x manual-entry

### Error recovery

abort command C-g  
recover lost file M-x recover-file  
undo C-\_   
restore buffer M-x revert-buffer  
redraw screen C-l

### Motion

Entity	back	forth
character	C-b	C-f
word	M-b	M-f
line	C-p	C-n
end of line	C-a	C-e
sentence	M-a	M-e
buffer	M-<	M->
screen	M-v	C-v

### Marking (building regions)

set mark C-spc  
exchange point & mark C-x x  
mark buffer C-x h

### Registers

copy region to reg C-x x  
get region from reg C-x g

### Killing and Deleting

Entity	back	forth
character	Delete	C-d
word	M-Del	M-d
end of line	M-0	C-k C-k
sent	C-x Del	M-k
region	C-w	
yank back	C-y	
zap to <char>	M-z	<char>

### Transpose

characters C-t  
words M-t  
lines C-x C-t

### Searching

forward C-s  
backward/reverse C-r  
forward expression C-M-s  
reverse expression C-M-r  
exit search Return  
undo last search char Delete  
abort search C-g

### Query replace

start query replace M-%  
query replace word C-u M-%  
Within query replace...  
replace & search Space  
replace & stay here ,  
backup to prev. match ^  
don't replace, go on Delete  
replace remaining !  
exit Return

### Multiple Windows

keep just this window C-x 1  
split window C-x 2  
switch to other window C-x o

### Buffers

select another buffer C-x b  
list other buffers C-x C-b  
kill this buffer C-x k  
minibuffer M-x

### The minibuffer

complete Tab  
show completions ?  
complete and execute Return  
previous input M-p  
next input M-n  
abort C-g

### Keyboard Macros

start defining C-x (  
stop defining C-x )  
execute macro C-x e

### Compiling something

Compile window M-x compile  
(e.g. gcc -o x x.c)  
Find next error C-x `

### Binding keys

E.g. To make control-x-' compile, add  
(global-set-key "\C-x'" 'compile)  
to ~/.emacs (or create file, as necessary)

### Things you should never know about

dungeon M-x dunnet  
tetris M-x tetris  
hide & seek M-x blackbox  
psychotherapy M-x doctor  
gomoku M-x gomoku  
robot game M-x landmark  
the snake game M-x snake  
peg solitaire M-x solitaire