## USEFUL PHONE NUMBERS

Consulting Center - Mudd 103 (software questions)...............x4983
Operations - Mudd Lobby (hardware problems) ....................x4989

## LAB PHONE NUMBERS
Computing Room - Mudd 101.................................................x4982
RAVL - 218 Anderson .......................................................x5153
Ryon - 102.......................................................................x2293
Mechanical Engineering - 241 ..................................................x3615
Abercrombie Lab - A121 .......................................................x2613
Abercrombie Lab - B223 .......................................................x3379
Physics Lab- 221....................................................................x2517

## ANATOMY OF A UNIX COMMAND

**command-name -option(s)** *filename(s)* or *arguments*

Example:          **wc -l** *sample*

The first word of the command line is usually the command name. This is followed by the options, if any, then the filenames, directory name/names, or other arguments, if any, and then a RETURN. Options are usually preceded by a dash and you may use more than one option per command.

The examples on this reference card use **bold** case for command names and options and *italics* for arguments and filenames.

### Important Note about UNIX Commands

UNIX commands are case sensitive. Type commands exactly as shown; most UNIX commands are lower case. File and directory names can be lower, upper, or mixed case but must be typed exactly as listed.

## ON-LINE DOCUMENTATION

**whatis** *command* - display a one-line summary about *command*
**man** *command* - display on-line manual pages about *command*

## FILE SYSTEM MANIPULATION

### MAKE (OR CREATE) DIRECTORY

**mkdir** *directory-name* - create a directory called *directory-name*

### LOOK AT A FILE

**more** *filename* - display the file contents one screen at a time
**head** *filename* - display first few lines of a file
**tail** *filename* - display last few lines of a file

### PRINT A FILE

**setenv PRINTER** *printer* - set the default printer
**lpr** *option filename* - print file
**lpq** *option* - check status of print queue
**lprm** *option* - remove jobs from printer queue
**fpr** *option filename* - print Fortran file
options: **-P***printer* - specify a printer other than the default

### LIST FILES AND DIRECTORIES

**ls** *directory-name* - list contents of directory

options**:**
- **-a**    list all files including invisible files
- -l    long list - shows ownership, permission, and links
- -t    list files chronologically
- **-f**    append "*" to executable file name, "/" to directory name
- **-d**    list directories
- **-u**    list files using time of last access instead of time of last modification
- **-F**    mark directories with forward slash, mark executables with an @-sign.
- **-g**    lists ownership of each file or directory

**pwd** -display the name of present working directory

### CHANGE WORKING DIRECTORY

**cd**                          to change to your home directory
**cd** *directory-name*          to change to another directory

examples:
**cd ~**                         change to home directory
**cd test**                      change to directory test

## (CONTINUED)

### DIRECTORY ABBREVIATION

| ~ | home directory (tilde) |
|---|---|
| *~username* | another user's home directory |
| . | current or working directory |
| .. | parent of working directory |

### MOVE (OR RENAME) FILES AND DIRECTORIES

**mv** *present-filename new-filename* to rename a file
**mv** *source-filename destination-directory* to move a file into another directory
options: **-i** interactive mode. Must confirm file overwrites.

### COPY FILES

**cp** *source-filename destination-filename* to copy a file into another filename
**cp** *source-filename destination-directory* to copy a file into another directory
options: **-i** interactive mode. Must confirm overwrites.

### REMOVE (OR DELETE) FILE

**rm** filename                to remove a file
**rmdir** *directory-name*      to remove an empty directory
options: **-i** interactive mode. Prompt for confirmation.

### CHANGE FILE ACCESS PERMISSIONS

**chmod [** *who op permission* **]** *filename*
*who* can be any combination of:
- **u**    (user)
- **g**    (group)
- **o**    (other)
- **a**    (all) (i.e. **ugo**)

*op* adds or takes away permission, and can be:
- +    (add permission),
- -    (remove permission), or
- =    (set to exactly this permission).

*permission* can be any combination of
- **r**    (read)
- **w**    (write)
- **x**    (execute)

Example: **chmod a+x** *filename* - makes *filename* executable by everyone

# SHELL TOOLS

## Wild Cards

| | |
|---|---|
| | single character wild card |
| | arbitrary number of characters |

## HISTORY: COMMAND REPETITION

| | |
|---|---|
| history | display list of most recent commands |
| ! | repeat the entire last command line at any point in the current command line |
| $ | repeat the last word of previous command line at any point in current command line |
| : n | repeat the *n*th argument from previous line at any point in current command line |
| ^ | repeat first argument from previous command line at any point in the current command line |
| n | repeat command line *n* |
| :p | display previous command |
| string | command beginning with *string* |
| * | repeat all arguments to previous command |

## COMMAND I/O

| | |
|---|---|
| > | command output redirection (create new) |
| >> | command output redirection (append) |
| < | command input redirection (from file) |
| << | command input (from script or standard input) |

## ALIAS

**alias** *alias-string command-string*

alias abbreviates a command string with an alias string. For multi-command strings, enclose commands in quotes.

Example: **alias** shut chmod go-rwx

To use the new aliased command shut on a file, and turn off read, write, and executable permissions for all users except yourself, type shut *filename*.

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# WINDOWING ENVIRONMENTS

| | |
|---|---|
| openwin | enter the Open Windows window environment (not available on X terminals) |
| startx | enter the X window environment (not required on X terminals) |
| startx -m | enter the Motif window environment (to enter Motif from the login window of an X terminal, type your userid, RETURN, your password and then F4) |

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# PROCESS CONTROL

## PROCESS STATUS

**ps -** display the status of the current processes
options:

| | |
|---|---|
| **-a** | include information about processes owned by other users |
| **-g** | display all processes |
| **-u** | display user-oriented processes |
| **-x** | include processes with no controlling terminals |
| **-gx** | display all of your local processes |

**kill** *id-number* - terminate a process owned by you
*id-number* (PID-Process ID) can be found by first using the ps command.

## RUN COMMAND IN BACKGROUND: JOB CONTROL

To run a command in the background, as opposed to the more common method of running commands in the foreground, append an & to the end of a command string. Then, you can type more commands to the command prompt, or even run more commands in the background for simultaneous command execution.

| | |
|---|---|
| Control-Z | stop (interrupt) foreground job |
| jobs | list of background jobs |
| bg | run a stopped job in the background |
| fg | resume stopped job in the background |

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# FILE OPERATIONS

## SEARCH FOR PATTERNS IN FILES

**grep** *search-string filename* [*filename...*] to find and type out lines containing the string in a file

options: **-v** type out lines that don't contain the string (invert the search)

## COUNTING WORDS IN A FILE

**wc** *filename(s)* counts the number of words, lines, and characters in a file

## COMPARE FILES

**diff** *filename1 filename2* compares contents of *filename1* and *filename2* on a line-by-line basis

## FILE TRANSFER

**mail** *address* sends mail to user at address
*address* format is *user@host.domain*

**ftp** *host.domain* use file transfer protocol to connect to remote host computer
Type ? for commands

## COMPRESS FILES

| | |
|---|---|
| **compress** *filename* | compress file and rename it *filename.Z* |
| **uncompress** *filename.Z* | uncompress file and rename *filename* |

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# PROGRAM COMPILATION

| | |
|---|---|
| **f77** *filename.f* | FORTRAN compiler |
| **cc** *filename.c* | C compiler |
| **pc** *filename.p* | Pascal compiler |
| options: | |
| **-o** *filename* | direct output of program to filename |
| **-l** *library* | include *library* in program compilation |

# USER INFORMATION AND HELPFUL COMMANDS

| | |
|---|---|
| **env** | lists your environment settings |
| **who** | lists users on the local system |
| **finger** *username@host.domain* | looks up information on another user |
| **whois** *username* | display real name of user |
| **clear** | clears screen |
| **leave** | reminds you when you have to leave |
| **ntalk** *username@host.domain* | talk to another user |
| **lprloc** | shows names and locations of printers |
| **stty sane** | resets terminal characteristics to a usable set |
| **stty** | display terminal characteristics |
| **date** | displays current time and date |
| **cal** *year* | for yearly calendar |
| **cal** *month-year* | for monthly calendar |
| **tn3270 ricevm1** | full-screen remote login to mainframe |
| **tn3270 library** | full-screen remote login to Fondren Library Card Catalog. At the VM/SP screen, press the RETURN key, and then enter **dial libris** after the screen clears. Hit RETURN again. To exit the LIBRARY system, enter CONTROL-] (Hold down the CONTROL key, and type the close bracket character), and then enter close at the TN3270 prompt. |
| **rlogin** *host.domain* | log into remote host computer |
| **telnet** *host.domain* | user interface to a remote system |
| **whereis** *command* | locate a command; display its pathname |
| **spell** *filename* | report spelling errors |
| **ispell** *filename* | interactive spell-checker |
| **echo $path** | inspect your search path |
| **pacinfo** | displays your current printing charges (IS systems only) |
| **bc** | basic calculator (Control-D to exit) |
| **du** | display the number of disk blocks used per directory or file |
| **du -s** | display your total disk usage |
| **quota -v** | display your disk quota and usage |