Slide 1

Administrivia

- Command-line way of changing password (`passwd` command) may not work quite yet — we broke it, updating the systems over the summer, and the fix may not be applied to all machines yet.
- Link to video lectures about command-line stuff on course Web site. Coming soon (I hope) is a link to a "learn by doing" tutorial.
- Homework 1 on the Web; due in a week.

Slide 2

Getting Started With the Command Line

- What you get when you start a terminal window is a "command shell", similar to Windows' "MS-DOS prompt".

  Rather than pointing and clicking, you type the name of the program you want to run, plus whatever arguments (parameters) it needs.
- (Why would you want to use a command line? because for some things it's arguably more efficient, and it's "scriptable" in ways that GUIs typically aren't.)
- Let's try some commands . . . (Don't worry if this goes by quickly — you should plan anyway to spend some time outside class trying out what we do in class and what's in the "reading".)

Slide 3

Some Commands

- `pwd` shows the current directory. (When you give a filename, it's relative to this directory unless you give a full pathname.)
- `ls` lists the current directory. Add `-l` to get more information.
- `cd foo` changes to directory `foo`. Just `cd` goes back to your home directory. Try `cd Local` and then `ls`.
- `mkdir foo` creates a director `foo`. Might be useful to create one for your files for this class.
- `passwd` changes your password. (Not a command you'll want often, but probably now!)

Slide 4

Useful Command-Line Tips

- The shell (the application that's processing what you type) keeps a history of commands you've recently typed. Up and down arrows let you cycle through this history and reuse commands.

  (Pedantic aside: "The shell" here means the one you're most likely to be using. There are other programs with similar functionality you could use instead.)
- The shell offers "tab completion" for filenames — if you type part of a filename and press the tab key, it will try to complete it.
- To learn more about command `foo`, type `man foo`. This is reference information rather than a tutorial, but usually very complete. `man -k foo` will give you a list of commands having something to do with `foo`.

Slide 5

Remote Access

- One of the strengths of a command-line enviroment is that it works well for "remote access" (using the computer when you aren't sitting in front of it).
- To do this from another UNIX-like computer, use `ssh`. `scp` and `sftp` can be used to copy files.
- From a Windows computer, install either Cygwin (UNIX-like toolkit) or PuTTY (terminal emulator).

Slide 6

Text Editors

- Many, many text editors, and people have favorites. Notepad is an example from the Windows world.
- I use and will teach in this class `vi`: It's found on every UNIX/Linux system I know of, and is very powerful, though it takes some getting used to. (`vi` on our Linux machines is actually `vim`, a more featureful "clone" of the original `vi`.)
- Other popular Linux text editors include `emacs`, `pico`, and `gedit`. Advice: Give `vi` a real try first, but if using it is just too painful, use something else!

Slide 7

`vi` Basics

- `vi` has two *modes* — insert mode (where what you type goes into the file) and command mode (where you can type commands to copy, move, delete, save, etc.).
- You start an editing session by typing, e.g., `vi hello.txt`. It starts in command mode. Enter insert mode by typing `i`. Exit by pressing ESC. Move around with the arrow keys. (Try entering some text.) Delete a single character with `x` (in command mode).
- Save and exit by typing `:wq`.
- *Highly recommended:* `vimtutor` brings up an interactive tutorial. (Homework 1 asks you to try it.)

Slide 8

`vi` Tips — Errors/Mistakes

- `u` means "undo" the previous action (insertion, deletion, paste). Repeat to undo multiple actions.
- `:q!` exits without saving. Useful if you make a complete mess of things.

Slide 9

More Commands

- Now that we have a way of creating files, we can try out some other basic commands.
- `cat` to show contents of a file. `more` or `less` to show it a screenful at a time.
- `cp` to copy one file to another. `-i` to warn about overwrites.
- `mv` to move or rename a file. `-i` to warn about overwrites.
- `rm` to delete a file. (Note — no recycle bin, so use with caution! or `-i` to prompt.)
- Other useful/interesting commands in video lectures and next time.

Slide 10

UNIX Filesystem Basics

- Unlike in Windows (and Mac?), UNIX filesystems are case-sensitive (so hello and Hello are different files).
- Files have two levels of ownership — “owner” (user) and “group”. Groups allow sharing files with some but not all users.
- File access is controlled by “permissions”. Three levels (owner, group, and everyone else), three types of access (read, write, execute).
- `ls -l` shows permissions. `chmod` changes them.

Slide 11

Minute Essay

- TBA