CSCI 3294 (Unix Power Tools), Spring 2005

Syllabus

1 Course description

In CSCI 1320 (PAD I) we introduce students to the basics of traditional UNIX command-line tools. These tools may seem clunky and primitive compared to the GUI-based tools students are more apt to be familiar with. But behind the clunky-seeming interface there is a lot of power and flexibility, in part because this traditional environment includes a number of "power tools" that can be great timesavers for the not-so-novice user. In this course we will look at some of these tools and also at the underlying UNIX philosophy/culture.

The following are some topics we will discuss; others will be included as time and students' interests permit.

- Command shells and shell scripts — timesaving interactive features, scripting, pipes and I/O redirection, and how I/O redirection meshes with standard I/O in programming languages.
- The `make` utility.
- Text-based utilities (`grep`, `sed`, etc.).
- Text editors. (`vi` can do a lot more than you might think.)
- Text formatting with `latex` (the UNIX enthusiast's alternative to word processing).

2 Basic information

Class meeting times and location

- M 2:30pm – 4:20pm, Halsell 340.

Prerequisites

- CSCI 1320 or equivalent.

Instructor and contact information

- Dr. Berna Massingill.
- Office: Halsell 201L.
- Office phone: (210) 999-8138.
- E-mail: `bmassing@cs.trinity.edu`. (Often e-mail is the best way to reach me.)
- Office hours:
  - Monday 4:30pm – 5:30pm in HAS340

- Tuesday 12:30pm – 3:30pm
- Wednesday 1:30pm – 4:30pm
- Thursday 12:30pm – 3:30pm

In addition to these scheduled office hours, you are welcome to drop by and see if I am in my office and free to talk, or you can make an appointment by calling me or sending me e-mail. If I am not in my office during scheduled office hours, I should be somewhere in the building (perhaps in one of the labs helping another student), and there will usually be a note on my door saying where to find me.

3 Course materials

Textbook

There is no required textbook for this course. The course Web page will have links to some useful on-line reading, parts of which you will be expected to read/skim/consult. If you want something hardcopy, the bookstore should have copies of two suitable books:

- Jon Lasser. *Think UNIX*. QUE, 2000.
- Shelley Powers, Jerry Peek, Tim O'Reilly, and Mike Loukides. *Unix Power Tools*. O'Reilly, 3rd edition, 2003.

They're listed as "recommended" rather than "required"; it would be useful to have a copy of either or both, but it is not required.

Web page

Most course-related information (this syllabus, homework and reading assignments, etc.) will be made available via the World Wide Web. The course Web page is a starting point for Web-accessible course material; you can find it linked from my home page (`http://www.cs.trinity.edu/~bmassing`), directly at `http://www.cs.trinity.edu/~bmassing/Classes/CS3294_2005spring/`, or via Tiger's Lair (Blackboard) (`http://bb.trinity.edu/`).

Other references

Any bookstore with a sizable technical-reference section will likely have many introductory books on UNIX or Linux, such as the two mentioned as optional textbooks for the course. The list of references below includes another such book (*UNIX for the Impatient*), plus an assortment of books about Unix philosophy/culture that make for interesting reading. If you like the O'Reilly "In a Nutshell" books, you may want to acquire *UNIX in a Nutshell* or *Linux in a Nutshell*. O'Reilly also publishes many books on UNIX-related tools, which are good to have on one's bookshelf as one's interests and finances dictate.

- Paul W. Abrahams and Bruce R. Larson. *UNIX for the Impatient*. Addison-Wesley, 1995.
- Mike Gancarz. *The Unix Philosophy*. Digital Press, 1995.
- Brian W. Kernighan and Rob Pike. *The UNIX Programming Environment*. Prentice-Hall, 1984.
- Eric S. Raymond. *The Art of UNIX Programming*. Addison-Wesley, 2003.

4 Course requirements

Grading

Grades in this course will be determined on the basis of class attendance/participation and several homework assignments, weighted as follows.

Component	Maximum points
Homework	about 200
Class participation	50

Numeric grades will be calculated as a simple percentage, by dividing total points earned on the above components by total maximum points. These numeric grades will then be converted to letter grades based on a curve, but in no case will the resulting letter grades be worse than students would receive based on the following scheme.

Numeric grade	Letter grade
90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

Homework assignments

There will be frequent short homework assignments. Detailed requirements will be provided as part of each assignment, and due dates will be announced via the course Web page.

Attendance

Regular class attendance is strongly encouraged; class participation grades will be based largely on attendance.

E-mail

Course-related announcements will sometimes be made by sending e-mail to the Trinity e-mail addresses of all registered students. Students are strongly encouraged to read mail sent to their Trinity addresses frequently. An archive of such announcements will be provided via the course Web page.

Late and missed work

Unless otherwise stated for a particular assignment, homework will be accepted up to one class period late, *but no more*, at a penalty of 10 percent off per working day. This penalty may be waived or additional time allowed *at the instructor's discretion* in cases of illness or conflict with a university-sponsored activity or religious holiday.

If you have unusual circumstances (as we all sometimes do), please discuss these with the instructor as far in advance as possible.

Collaboration and academic integrity

Unless otherwise specified, all work submitted for a grade (homework assignments and projects) must represent the student's own individual effort. For students covered by the Academic Honor Code, unless otherwise stated all submitted work (homework and projects) will be considered pledged work. Discussion of homework assignments and course material among students is encouraged, but not to the point where detailed answers are being written collectively. Graded papers and sample solutions from previous years are off limits. Answers that are identical beyond coincidence (either to another student's work or to a sample solution from a previous year) will be considered to be in violation of Trinity's Academic Integrity Policy or Academic Honor Code, whichever applies, and *will result in disciplinary action.* You are responsible for the security of your work, both electronic and hard copy.