

# CSCI 3294 (Unix Power Tools), Fall 2009

## 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

- MW 11:30am – 12:20pm, HAS 340

#### Prerequisites

- CSCI 1320, or consent of instructor

#### Instructor contact information

- Dr. Berna Massingill
- Office: HAS 201L
- Office phone: (210) 999-8138
- E-mail: [bmassing@cs.trinity.edu](mailto:bmassing@cs.trinity.edu)

#### Office hours

Scheduled office hours for this semester are as follows:

- Monday 1:30pm – 2:30pm
- Tuesday 2pm – 5pm
- Wednesday 1:30pm – 4:30pm
- Thursday 2pm – 5pm

These times are subject to change; a current schedule will be available on my Web page and outside my office door.

If I'm not in my office, I should be somewhere in the building (perhaps in one of the labs helping another student), and there will often be a note on my door saying where to find me.

Some office hours will be held in one of the classrooms/labs (times to be announced soon). These are "open lab" times, during which I'll be in one of the department's labs, prepared to answer questions. The intent is that students can use these times to work on assignments with someone available to help with any questions or problems.

In addition to scheduled office hours, you're welcome to drop by and see if I'm in my office and free to talk, or you can make an appointment by calling me or sending me e-mail.

E-mail is almost always a good way to reach me; I normally check it fairly often and reply promptly.

### 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 might be useful to have a copy of one of them, but it is not required.

#### Web page

Most course-related information (this syllabus, homework and reading assignments, etc.) will be made available via the 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>) or directly at [http://www.cs.trinity.edu/~bmassing/Classes/CS3294\\_2009fall/HTML/](http://www.cs.trinity.edu/~bmassing/Classes/CS3294_2009fall/HTML/).

#### 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 and a project, weighted as follows.

| Component           | Maximum points |
|---------------------|----------------|
| Homework            | about 200      |
| Project             | 50             |
| Class participation | 50             |

Numeric grades will be calculated as a simple percentage, by dividing total points earned on the above components by total points possible. 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-/A         |
| 80 – 89       | B-/B/B+      |
| 70 – 79       | C-/C/C+      |
| 60 – 69       | D/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.

### Project

As part of the course, students must also complete a significant project approved by the instructor and present it to the class. Detailed requirements for the project will be described separately and will include program code (or scripts, makefiles, etc.), a short written report, and a presentation to the class.

Notice that although there are no exams in this course, we will use the time scheduled for a final (December 15 at 8:30am) for project presentations. Please plan accordingly (i.e., avoid scheduling anything else for that time).

### 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.

## 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 me as far in advance as possible.

## Academic integrity at Trinity

All students are covered by the Trinity University Honor Code, which prohibits dishonesty in academic work.

The Code asserts that the academic community is based on honesty and trust, and defines specific violations as well as the procedure to determine if a violation has occurred. The Code also covers the process of hearings for alleged violations and the various sanctions applied for specific violations. The Code also provides for an appeal process.

The Code is implemented by the Academic Honor Council. Under the Code, a faculty member will (or a student may) report an alleged violation to the Academic Honor Council. It is the task of the Council to collect the pertinent evidence, adjudicate, and assign a sanction within certain guidelines if a violation has been verified.

Students who are under the Honor Code are required to pledge all written work that is submitted for a grade: "On my honor, I have neither given nor received any unauthorized assistance on this work" and their signature. The pledge may be abbreviated "pledged" with a signature.

The specifics of the Honor Code, its underlying philosophy, and the norms for sanctioning can all be found on the Academic Honor Council website, accessed through the Trinity Homepage, or directly [here](#)<sup>1</sup>.

## Collaboration and academic integrity in this course

Unless otherwise specified, all work submitted for a grade (homework assignments and projects) must represent the student's own individual effort. Unless otherwise stated all submitted work 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 the Honor Code, and *will result in appropriate action*. You are responsible for the security of your work, both electronic and hard copy.

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<sup>1</sup>[http://www.trinity.edu/departments/academic\\_affairs/honor\\_code/](http://www.trinity.edu/departments/academic_affairs/honor_code/)