CSCI 4320 (Principles of Operating Systems), Fall 2003

Syllabus

1 Course description

This course introduces the fundamentals of operating systems design and implementation. Topics include the following:

- Role and purpose of operating systems.
- History of operating systems.
- Processes and process management, including a discussion of concurrency and related issues.
- Memory management.
- Input/output and device management.
- File systems.

2 Basic information

Class meeting times and location

- Section 1: TR 9:55 am – 11:10 am, HAS 228
- Section 2: TR 11:20 am – 12:35 pm, HAS 228

Prerequisites

- CSCI 2321 (Principles of Computer Design).

Instructor and contact information

- Dr. Berna Massingill
- Office: HAS 201L
- Office phone: (210) 999-8138
- Web page: `http://www.cs.trinity.edu/~bmassing/`
- E-mail: `bmassing@cs.trinity.edu`
- Office hours:
  - Monday 12pm – 5pm
  - Tuesday 1pm – 2pm in HAS 201L, 3:35pm – 5:35pm in HAS 228
  - Wednesday 11am – noon
  - Thursday 1pm – 2pm

  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

- Andrew S. Tanenbaum. *Modern Operating Systems.* Prentice Hall, second edition, 2001.

Web page

Most course-related information (this syllabus, homework and reading assignments, etc.) will be available via the Web. The "home page" for the course is `http://www.cs.trinity.edu/~bmassing/CS4320/`; it is linked from my home page (`http://www.cs.trinity.edu/~bmassing/`) and from Blackboard.

Other references

- M. Beck, H. Boehme, M. Dziadzka, and U. Kunitz. *Linux Kernel Internals.* Addison Wesley Longman, second edition, 1998.
- K. M. Chandy and J. Misra. *Parallel Program Design: A Foundation.* Addison Wesley, 1989. A nice mathematical/formal treatment of concurrent algorithms (tangentially relevant to this course).
- A. M. Lister and R. D. Eager. *Fundamentals of Operating Systems.* Springer Verlag, fifth edition, 1993. Out of print, but an excellent short book emphasizing basic concepts.
- M. K. McKusick, K. Bostic, M. J. Karels, and J. S. Quarterman. *The Design and Implementation of the 4.4BSD Operating System.* Addison Wesley, 1996.
- A. Silberschatz, P. B. Galvin, and G. Gagne. *Operating System Concepts.* John Wiley & Sons, Inc., sixth edition, 2002. Popular textbook, with more detail than Tanenbaum but more difficult to read.
- A. S. Tanenbaum and A. S. Woodhull. *Operating Systems: Design and Implementation.* Prentice Hall, second edition, 1997. A more implementation-oriented treatment, using Tanenbaum's MINIX operating system.

4 Course requirements

Grading

Grades in this course will be determined by the results of two major exams, several homework assignments, and class participation, weighted as follows:

Component	**Maximum points**
Exam 1	100
Exam 2	100
Homework	about 200
Class participation	40

Numeric grades will be calculated as a simple percentage, by dividing points earned on the above components by 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
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

Exams

Exams are comprehensive but will emphasize the most recent material. They are scheduled as follows. Please plan accordingly.

- Exam 1: October 16, in class.
- Exam 2: December 2, in class.

(Note the date and time of the second exam: It will be in class on the last possible day for a major assignment, rather than during the scheduled final-exam period.)

Homework assignments

Several homework assignments will be required for successful completion of this course. Some will require programming; others will not. Detailed requirements will be provided as part of each assignment; 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

Exams can be made up only in cases of documented conflict with a university-sponsored activity or documented medical emergency.

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.

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, quizzes, and exams) must represent the student's own individual effort. Discussion of homework assignments among students is encouraged, but not to the point where detailed answers are being written collectively. Answers that are identical beyond coincidence are in violation of Trinity's Academic Integrity Policy and *will result in disciplinary action, including, but not limited to, a failing grade on that assignment for all parties involved.* You are responsible for the security of your work, both electronic and hard copy.