

Appendix E

Spring 2010 Syllabus

E.1 Getting information

- An html version of the notes is available at www.cs.ucr.edu/~thp/notes and is browsable from on-campus machines. (Note that you can use NX or X-windows to project a browser window to an off-campus machine.)
- A PDF version of the notes is available for browsing on the CS153 Moodle site. Use this to print pages and only print through the preliminary readings, since I'm editing the stuff just ahead. **Do not print the whole book at this time — you'll just be wasting paper.**
- The Moodle discussion list for this class is available for general discussion.

I prefer that members of the class pose their questions related to course material on the Moodle discussions:

- Questions posted to Moodle are seen by everyone and provoke further questions in the minds of the rest of the class.
- My answers are seen by *all* members of the class.
- My answers are therefore a matter of record, and you can hold me to them.
- I get to think about my answers before I make them a matter of record, and can cite or include background that I couldn't in a casual conversation.
- Other folks, e.g., TAs and/or other members of the class, may have better answers than I do.
- People can and will correct me when I'm wrong.
- Technical questions, say relating to a homework problem, can be answered in a much more timely manner.

Personal questions relating say to the grading of a particular question or problem can and should be directed to me personally at `thp@cs.ucr.edu`.

E.2 Objectives

E.2.1 Official objectives for CS153

1. Study basic principles underlying the design of operating systems with a focus on principles and mechanisms used throughout the design
2. An understanding of CPU scheduling, storage management: memory management, virtual memory and file systems
3. Study of concurrency control and synchronization, classic algorithms for synchronization and concurrency
4. Study deadlocks, devices, device management, and I/O systems
5. Study dynamic binding
6. An understanding of protection, access control, and security
7. Improve skills in concurrent programming and introduce kernel programming

E.2.2 Some additional objectives for this offering

To convey an understanding of:

- purposes of OSes
- how OSes achieve those purposes
- organizational significance of OS choice.
- societal and economic impact of OSes.
- basic marketing tactics and their countermeasures.
 - pricing to value rather than cost
 - who gets to set the standard (e.g., IBM vs. AT&T).
 - lock-in (via featurism and proprietary protocols). The defense is standards both formal and ad hoc. The counter-ploy is “embrace and extend”.
 - FUD
- Specific market penetration by Linux and Windows.
- what’s going on now, e.g., intellectual-property (IP) wars and DRM.

- skill in programming.
- skill in determining semantics of system calls library functions.
- better understanding of caching, protection, concurrency, binding.

E.2.3 Outcomes

According to the ABET accreditation board, engineering programs must demonstrate that upon graduation their graduates have:

- a. an ability to apply knowledge of mathematics, science, and engineering
- b. an ability to design and conduct experiments, as well as to analyze and interpret data
- c. an ability to design a system, component, or process to meet desired needs
- d. an ability to function on multi-disciplinary teams
- e. an ability to identify, formulate, and solve engineering problems
- f. an understanding of professional and ethical responsibility
- g. an ability to communicate effectively
- h. the broad education necessary to understand the impact of engineering solutions in a global and societal context
- i. a recognition of the need for, and an ability to engage in life-long learning
- j. a knowledge of contemporary issues
- k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

The objectives of this course are intended to contribute to those at-graduation outcomes of your education. Please be mindful of the connections and feel free to ask about them.

E.2.4 Paradigms

There are two prevailing paradigms in discussions about the purposes of education:

- the student as customer,
- the student as work-in-progress.

Both are correct and together they convey an accurate picture of the educational endeavor, especially at the level of “higher education”.

E.3 Assessment

Everyone is responsible for doing the assigned readings and assimilating the corresponding material before lecture and/or lab.

- Quizzes: in labs and in lectures: unannounced, no makups, everyone's two lowest scores are dropped.
- Projects: assigned in labs, see schedule below.
- Final: Monday 12/6 from 11:30 to 2:30.

Respective weights will be somewhere between 25% and 40% and most likely close to 33% each.

E.4 Texts

- My notes, which will be available in pdf and html as resources in Moodle. For reading the pdf version, I recommend using `/usr/cssshare/bin/gv`.
- **Operating System Concepts (seventh edition)**, by Silberschatz, Galvin, and Gagne

E.5 Schedule

- Lectures: Tu, Th at 3:40 to 5:00 in EBU-II 143. Instructor: Thomas Payne (thp@cs.ucr.edu), 951-827-3119, 409 EBU-II.
- Labs (Curtis Yu, TA):
 - Section 21 (Lab 1): Monday at 11:10-2:00 in EBU-II 135. No seats left.
 - Section 22 (Lab 2): Friday at 2:10-5:00 in EBU-II 135. Five seats left.
- Instruction begins: Monday, January 1.
- Holidays: MLK Day on Monday, January 18 and Presidents' on Monday, February 15.
- Final: Wednesday, March 17, 7:00pm to 10:00pm.
- Pace: We have 20 lectures and 220 pages to cover in my notes, i.e., 11 pages per lecture.¹ You are responsible for having read and understood or formulated questions about that material before the lecture. Frequent unannounced quizzes will grade you and give you feedback regarding your understanding of that material.

¹As you can see from the table of contents, that covers the section of protection.