

CSC 262: Operating Systems Syllabus

1 General Information

Instructor: Trek Palmer (trekp@cs.umass.edu)
Meeting Time: Tuesdays and Thursdays 3-4:50
Room: Burton B-17
T.A.: Kelly Dwan
Web Page: www.cs.umass.edu/~trekp/csc262

2 Course Description

The Operating System is the name given to the pieces of software separating your application code from the nitty gritty details of the bare hardware. The function of an Operating System is to abstract away as many hardware details as possible and to present users and application programmers with a consistent interface to the computer system. Specific details about memory, hard disks, network cards, video hardware, etc. are all abstracted away so that a programmer need only think about abstractions like files and network sockets. However, to be effective, the operating system must do all this as transparently, fairly, and as efficiently as possible. These requirements are what make OS design and implementation a serious engineering challenge. This course will serve as an introduction to Operating Systems and systems programming in general. The course will cover the basics of OS design including: filesystems, processes, threads, and virtual memory. Lectures will cover both theoretical issues as well as implementation. Homework will be assigned to reinforce topics covered in the lectures. Like any good systems course, lab work will be an important part of the learning process. The labs run the gamut from installing a clean linux system to extending the kernel with their own modules. In the end, the students will have a good working knowledge of basic OS principles and general systems programming.

After completing the course, students will:

- Gain facility with the C programming language and systems programming in general (always good to have on a resume)
- Have a good understanding of filesystem structure and implementation
- Have a good understanding of virtual memory
- Have a good understanding of processes, threads and schedulers
- Have a much better feel for what the computer is actually doing

3 Texts

Operating Systems: Internals and Design Principles (5th Edition), by William Stallings.

4 Course Requirements

Unlike previous incarnations, this edition of CSC 262 will have no separate lab section. The lecture period is long enough to accommodate a lab period. Some classes will consist solely of a lecture, while others will have a short lecture followed by a lab session. Homework will be assigned almost every week and will cover the most recent lecture material. Lab work will involve coding and hacking around with an actual Linux system. Labs will take a fair amount of work and may span multiple weeks (in systems work, nothing teaches quite so much as actually getting in the trenches and writing some code). The homework and labs together will account for 60% of the final grade. The remaining 40% will come from 2 exams (a mid-term and a final exam). Because there will be a fair amount of homework and lab work, the lowest grades from each will be dropped when computing the final grade.

Additionally, I would encourage each of you to start work early. In particular, the labs will take some time and will usually generate a fair number of questions. Starting the lab work early means that you'll have an opportunity to ask questions during class that should make the Labs easier to complete.

5 Late Policy

Assignments handed in one day late will receive 5 points (half a letter grade) off. Assignments handed in two days late will receive 10 points off. Assignments will not be accepted after the solutions have been posted to the web page.

6 How to Submit Assignments

Homework and written portions of labs can be e-mailed or handed in during class as hardcopy. Code should be e-mailed to trekp@cs.umass.edu, with the subject line reading: CSC262 Lab 2 submission (with "Lab 2" replaced with whatever you're submitting).

7 Office Hours

The instructor will be available on Tuesdays and Thursdays from 1-3 in his office (McConnell 414). Additionally, office hours are available by appointment.

E-mail is usually the best way to get a hold of me (trekp@cs.umass.edu). I will make an effort to respond to e-mail within 2 days.