CS 4414 – Undergraduate Operating Systems
"Nothing is real, everything is virtual"

Instructor: Andrew Grimshaw
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Lecture: Tuesday, Thursday: 11:00-12:15
Text: Silberschatz, Galvin, Gagne, "Operating System Concepts" 9th edition
TA : Yan Yanhaona Office hours: TBA

Purpose: The purpose of this course is to introduce the student to the basics of modern operating systems with a particular emphasis on concurrency.

Topics to be covered include but are not limited to:

- Operating system structures
- Processes
- Inter-process communication
- Thread
- Scheduling
- Synchronization and deadlock
- The storage hierarchy and memory management
- Input/output
- File systems
- Security and protection
- Distributed systems basics
- Modern virtualization technologies

It is *expected* that the student know C/C++. Further, the student is expected to know Unix basics such as editing, compiling, make files, etc. If you do not already know how to use a debugger with C I suggest you learn how. If you are a weak coder expect to put more time into the class. All machine problems will be done on the Linux operating system. I recommend that you put a virtual machine manager such as Virtual Box on your laptop or desktop and get an Ubuntu image. If you are not able to do that you will be able to use the CS labs.

There will be

Eight pop quizzes	20%
five machine problems	35%
mid-term	15%
comprehensive final exam	30%

There will be eight pop quizzes. The top five scores will be kept. The three lowest scores, including missing quizzes, will be dropped. The quizzes will be taken in class and take less than ten minutes each. Expect one early on. Each machine problem will consist of two parts – the coding part and the write-up part, each worth 50%. Sample write-ups will

be available on-line. Each assignment will have several objectives. In the first paragraph of your write-up you must specify which objectives were achieved, and which were not. Also note that comments in your code are worth 10% of the homework value. Unless otherwise specified you will be turning in code for on-line, automatic grading.

I am a straight by the numbers grader. I total the points, draw the lines, and that is it. It does not matter if you got better over time, or if you had a really tough semester. At the same time, if you are having a really tough semester, come to office hours and get some help. Help I can give. If things are really not working out I am pretty much always willing to sign a drop form - though your Dean may not. Note that by the numbers does not mean straight-scale. The average score the last time I taught the course was 76.5, std. dev. of 16.

Cheating

I take a very dim view of cheating. If there is any doubt in your mind if it is cheating it probably is. If you are still wondering, ask me. That said, I encourage you to talk about the homework and machine problems with each other, and help each other debug your machine problems. But that does not extend to copying.