
∞ COMP 345 Operating Systems ∞
 M-W-F Lecture – 10:30-11:20

Who: Michael Gousie
 Where: Science Center 102
 When: Mon/Wed/Fri 2:00 - 3:00; Tue 2:00 - 4:00
 and by appointment
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Required Text:

Operating System Concepts, 7th Edition, by Silberschatz, Galvin, and Gagne (Wiley, 2005).

Course Content/Prerequisites

This is a course on general operating systems theory. At the end of the course, you should be able to answer questions such as:

- How do multiple processes run on one processor?
- How do you take advantage of multiple processors?
- How is data retrieved/stored in RAM? On disk?

Knowing some hardware is helpful, so the course is a bit easier if you have had COMP 220 - Computer Organization; however, some of this material will be reviewed in class. You will be expected to review some hardware issues on your own. To help visualize some of the issues, we may use on-line simulation software as well.

To put theory into practice, there will be several simulation/analysis projects, one of which is a long-term C++ program and report. Two projects will be specific to the Linux operating system, which is available on the computers in csLab and also via free download. The text has a chapter devoted to Linux, and you will get additional handouts in class.

Grading:

There will be two exams during the semester and a final exam. The exams are worth 50% of your grade. Programming projects will account for another 43% of your grade. One of these *may* be a group project. The final 7% will be comprised of three written homeworks.

Grades will be assigned according to the following scale:

A = 93-100, A- = 90-92, B+ = 87-89, B = 83-86, B- = 80-82, etc.

Exam Schedule:

Exam	Weight	Date
Exam 1	15%	October 14
Exam 2	15%	November 9
Final	20%	December 10 @ 2:00 PM

Project Schedule:

Project	Weight	Topic	Due Date
OS1	6%	Threads	October 1
OS2	15%	CPU scheduling simulation	→ December 1 ←
OS3	10%	Mutual exclusion	November 3
OS4	6%	Memory usage	November 17
OS5	6%	Working set simulation	December 10

Course Policies:

- You are responsible for all material covered in class.
- You are responsible for all reading assignments, indicated on the schedule below.
- If you must miss a quiz or exam for any reason, you must inform me BEFORE the test. Except in the case of emergency, illness (almost death), or Bill Gates has finally destroyed the universe, makeup exams will not be given.
- Some of the programming assignments must be completed using Linux, either in csLab or on your own computer. The long project (OS2) can be done on any platform using standard C++. Programming projects will be handed in electronically.
- Written homeworks should be neat and done on loose-leaf or printer paper. Do not tear paper out of a notebook. Staple multiple pages together.
- Assignment due dates are FIRM.
 - All programming projects must be submitted electronically by midnight on the due date. Projects submitted on the following day will receive a 15% penalty. Anything turned in later will receive a 0. Hard copy must be submitted at the beginning of class on the next day or as instructed in the project specifications.
 - Written homeworks must be submitted at the beginning of class on the due date. There is no provision for late homeworks.
- You are expected to adhere to the Honor Code.
 - Although *discussion* of assignments is encouraged, the *implementation* of programs is to be the result of your, or your group's, own work. Any copying of programs or portions of programs will result in a 0 for that assignment or failure of the course.
 - Written homework should absolutely be your own work. Copying of homeworks will result in a 0 for the homework portion of the grade or failure of the course.
 - Collaboration on exams is prohibited.
 - You will be required to write and sign an Honor Code pledge on all work turned in.
 - Any violation of the above guidelines will result in severe penalties.
- The use of cell phones, iPods, and other personal electronic devices is prohibited during class, labs, and exams.

Course Schedule (subject to change):

Week #	Week Begin	Topic	Reading
1	August 30	Introduction, basic structures	Chapters 1 & 2
2	September 6	Processes, threads	Chapters 3 & 4
3	13	Linux threads & shell programming	Pages 737-756, handouts
4	20	CPU scheduling, OS2 project discussion	Chapter 5, handout
5	27	Process synchronization	Chapter 6
6	October 4	Linux semaphores, deadlock	Chapters 7 & 8, handouts
7	11	BREAK, Exam 1	
8	18	Memory management	Pages 756-764, Chapter 9
9	25	Virtual memory, file systems	Chapter 10
10	November 1	File system implementation	Chapter 11, pages 764-780
11	8	Mass-storage structure, Exam 2	Chapter 12
12	15	I/O, lab problem	Chapter 13, handout
13	22	Protection, THANKSGIVING	Chapter 14
14	29	Security	Chapter 15
15	December 7	Distributed systems, review	Selections, chapters 16-18
	14	Final exam, December 15 @ 9:00 AM	