

# FSU COP 4610, CGS5765 (Fall 2004)

## Principles of Operating Systems

### Course Syllabus

Lecture: Tuesday and Thursday 3:35pm – 4:50pm MCH 303

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#### Contact Information

##### Instructor

Andy Wang ([awang@cs.fsu.edu](mailto:awang@cs.fsu.edu))

Office: 264 Love Building

Office hours: Monday and Friday 1:30pm – 2:30pm, and by appointments

Class website: [http://www.cs.fsu.edu/~awang/courses/cop4610\\_f2004/](http://www.cs.fsu.edu/~awang/courses/cop4610_f2004/)

##### Teaching Assistants

Charles Weddle ([weddle@cs.fsu.edu](mailto:weddle@cs.fsu.edu), subject: cop4610)

Sean Toh ([huanktoh@cs.fsu.edu](mailto:huanktoh@cs.fsu.edu), subject: cop4610)

#### Objectives

- Define, explain, and apply introductory operating systems concepts: process management, CPU scheduling, synchronization, caching, file system, and the like.
- Use the operating system interface via implementing a user-level shell.
- Gain experience in implementing and debugging operating system components, including the kernel module, system call, synchronization primitives, and the file system.

#### Prerequisites

- COP 4530, or an equivalent level of understanding of data structures
- CDA 3101 or an equivalent level of maturity in understanding the principles of computer hardware design and implementation
- Working knowledge of the UNIX programming environment
- Proficiency in C

#### Course Material

- Lecture notes (posted on the class Web site)
- Required textbooks:
  - Silberschatz, Galvin, and Gagne, *Operating System Concepts*, 6<sup>th</sup> Edition (ISBN: 0-471-25060-0)
  - Gary Nutt, *Kernel Projects for Linux* (ISBN: 0-201-61243-7)

#### Class Grading

The following coursework components contribute to your final grade, and to the degree shown:

Projects	40%
Homework Assignments	10%
Exam 1	10%
Exam 2	10%
Final Exam	30%

Homework assignments are due at the beginning of the class. Assignments consist of short-answer questions, essays, or problems. The purpose of these assignments is to prepare you for exams. For each assignment, you can earn one bonus percent (of the assignment grade) by giving constructive comments on lectures or discussions. (Instead of comments, you can also submit your funny story of the week.)

There will be four increasingly challenging projects due during this course. You are expected to work in teams of two people. For both homework and projects, if you receive help from others, or if you find helpful information from various sources, please include appropriate acknowledgements.

On exams, 85% of the questions asked will be based on lecture materials, assignments, and projects; 15% of the questions will test your ability to apply various principles learned in the class.

The final exam will be comprehensive.

To receive a passing grade for the overall course, you must earn a passing grade on the final exam and a passing grade on the projects. (Note, however, that passing both the final exam and all of the projects does not imply a passing grade in the course.)

### Computer Accounts

You will need a computer science account. If you don't have one, use the following link to obtain one: <http://www.cs.fsu.edu/sysinfo/newstudent.html>.

You will also need an ACNS account (i.e., @garnet.fsu.edu) for receiving class emails and using the discussion board. If you want, you can forward your garnet email to other accounts (see <https://cars.acns.fsu.edu>).

### Your Responsibilities

- Understand the lecture slides and reading assignments
- Attend office hours for extra help, as needed
- Uphold academic honesty in completing your assignments, projects, and exams
- Turn in your projects on time
- Check the class Web page and your garnet email account regularly

### Resources

- Class newsgroup: <http://campus.fsu.edu>
- Emacs reference card: <http://www.indiana.edu/~ucspubs/b131>

### Course Calendar (Tentative)

Week	Date	Lecture
1	8/24	Course overview
	8/26	Introduction and history
2	8/31	Threads, address space, and processes
	9/2	Genesis: from raw hardware to processes
3	9/7	CPU scheduling
	9/9	Cooperating threads
4	9/14	Implementing mutual exclusion
	9/16	More on semaphores
5	9/21	Deadlock
	9/23	Exam 1

6	9/28	Memory protection
	9/30	Address translation
7	10/5	Caching and TLBs
	10/7	Demand paged virtual memory
8	10/12	Device management
	10/14	File systems and disk management
9	10/19	Naming and directories
	10/21	Transactions: reliability from unreliable components
10	10/26	Protection and security
	10/28	Exam 2
11	11/2	Networks and distributed systems
	11/4	Network protocols
12	11/9	Remote procedural call
	11/11	Veteran's Day
13	11/16	Distributed file systems
	11/18	Advanced topics
14	11/23	Advanced topics
	11/25	Happy Thanksgiving!
15	11/30	Advanced topics
	12/2	Advanced topics

## Course Policies

**Attendance:** The university requires attendance in all classes. Absences may be excused with appropriate documentation. You should make up for any materials missed due to absences.

**Missed exams:** A missed exam will be recorded as a grade of zero. We will follow the university rules regarding all missed exams ([http://registrar.fsu.edu/dir\\_class/fall/exam\\_schedule.htm](http://registrar.fsu.edu/dir_class/fall/exam_schedule.htm)).

**Incomplete grade:** An incomplete grade will be assigned only under the following exceptional circumstances:

- If you miss the final exam with an accepted excuse, you must make up the exam during the first two weeks of the following semester.
- Due to extraordinary circumstances, with appropriate documentation, the student can make up the missed portion of the course prior to the end of the next semester.

**Honor code:** Students are expected to uphold the academic honor code (<http://www.fsu.edu/Books/Student-Handbook/codes/honor.html>).

**ADA:** Students with disabilities needing academic accommodations should: (1) register with and provide documentation to the Student Disability Resource Center, and (2) bring a letter to the instructor indicating the need for accommodations within the first week of class. This syllabus and other class materials are available in alternative formats on request.

For more information about services available to FSU students with disabilities, contact:

Student Disability Resource Center  
08 Kellum Hall  
Florida State University  
Tallahassee, FL 32306-4066  
Email: [sdrc@admin.fsu.edu](mailto:sdrc@admin.fsu.edu)  
Phone: (850) 644-9566