COP-4600-1
Introduction to Operating Systems
Syllabus, Spring 2012

When: M-W 3:05 - 4:20p.m.
Where: CIS 1047
Instructor: Larry Hall, hall@csee.usf.edu
Office: ENB 330
Office Hrs. M 11-12,T 2:30-3:30, W: 1:30-2:30 or by appointment.
Phone: 974-4195 or 974-3652 (Dept.)
Web page for class: http://www.csee.usf.edu/~hall/cop4600/
TA: Amin Ahmadi Adl, amin1@mail.usf.edu, Office: ENB 335, Hrs. T, Th, 5-6:30p.m.

Grading: There will be two midterms. Each will count for 25% of the final grade. The comprehensive final will make up 30% of the final grade. There will be a multi-part project which will involve experiments within an operating system simulator. The project and homework will count for 20% of the final grade. CPU scheduling and Memory Management will be the major project parts.
General: The textbook is: *Operating Systems Concepts, Eighth Edition*, by Silberschatz, Galvin, and Gagne published by John Wiley and Sons. The OSP book by Kifer and Smolka will be needed for the operating system projects.
Each topic should be read about in the book, before the lecture which pertains to it. **No late work is accepted**!! Any academic dishonesty will result in an F in the course. Programs must be individual and no help may be received or given without acknowledgment. Grading scale: A $\geq$ 90, B $\geq$ 80, C $\geq$ 70, D $\geq$ 60, F <60.

Topics:

Week 1: Chpts. 1, 2	Introduction, System Structures
Week 2: Chpts. 3.1-3.4	Processes, scheduling, interprocess communication
Week 3: Chpt. 3.4-3.7, 4.1-4.5, 5.1-2	Threads, process communication, CPU Scheduling
Week 4: Chpt. 5.3-5.8	CPU Scheduling
Week 5: Chpt. 8	Memory management basics, Paging, Segmentation
Week 6: Chpt. 9.1-9.2	Test 1, Virtual Memory
Week 7: Chpt. 9.3-9.7,	Virtual Memory
Week 8: Chpts. 9.8-9.11, 10.1-10.3	", File management
Week 9: Chpts. 10.4-10.6, 11.1-11.3	File systems implementation
Week 10: Chpts. 11.3-11.9, 12	File implementation, Disk management
Week 11: Chpt. 13	Selected I/O Topics and Test 2
Week 12: Chpt. 6.1-6.6	Process Synchronization, semaphores, critical sections
Week 13: Chpts. 6.7-6.10 7.1-7.3	Monitors, Atomic transactions. Handling Deadlocks
Week 14: Chpt. 7.4-7.8	Deadlock detection and avoidance,
Week 15: Chpts. 14, 15	Selected topics and review.

Final Wednesday May 2, 8-10p.m.

Course Objectives:

1. Develop an understanding of the principles of operating systems.

2. Develop insight into process management and scheduling issues.

3. Understand memory management operation.

4. Develop an understanding of file system implementation and of multiple levels of hardware support and management.

5. Understand the concepts of cooperating processes, including communication, synchronization, and deadlock (detection and avoidance).

6. Be able to evaluate operating system features.

7. Further develop an understanding of design tradeoffs during the project phase of the course.

Projects and Due Dates.

1. General interrupt handler and the timer interrupt handler. To be assigned Jan. 23 and Due Jan. 30 at 2:30PM.

2. CPU scheduling. To implement several different methods of scheduling jobs for the CPU. To be assigned Feb 6 and due Feb 20 at 2:30p.m.

3. Memory management. To experiment with paging schemes in a virtual memory operating system. To be assigned Feb. 27 and due April 5 at 2:30p.m.

In the event of an emergency, it may be necessary for USF to suspend normal operations. During this time, USF may opt to continue delivery of instruction through methods that include but are not limited to: Blackboard, Elluminate, Skype, and email messaging and/or an alternate schedule. It's the responsibility of the student to monitor Blackboard site for each class for course specific communication, and the main USF, College, and department websites, emails, and MoBull messages for important general information.

Classroom Capture Pilot Syllabus Statement The University of South Florida is piloting a classroom capture system, funded in part by student technology fees, which we will be using in this course. The system allows us to audio record the instructor and students, as well as content presented using the classrooms computer and/or document camera, and then distribute the recordings to you within a secure environment (either Blackboard, USF on iTunes, or other distribution mechanism approved by USF Information Technology).

Because we will be recording in the classroom, your questions or comments may be recorded. If this is of serious concern to you, you should consider dropping the class during the first-week drop/add period.

By participating in this course, you are acknowledging and agreeing to the following policies: You may access recordings online, or download them to your computer, smartphone or other mobile device, or to any other device that can play digital media. Data

about access to recorded class sessions such as the number of times viewed, length of time viewed, and/or number of downloads will be collected as part of the study.

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Because of the experimental nature of this pilot, we cannot guarantee that all sessions will be properly recorded. It is important that you attend class, actively participate, and take notes. If you miss a class session, you cannot assume that a recording will be available.

Any questions or concerns about this pilot project can be directed to the Chair of the USF Classroom Capture Pilot, Dr. Colleen Kennedy, Dean of the College of Education, email: kennedy@usf.edu. Thank you for your participation!