OPERATING SYSTEMS
COP4600
FALL 2011
TUE/THU 12:30PM-1:45PM, SOC 154

Instructor:	Anda Iamnitchi	Office:	ENB 334
Email:	anda@cse.usf.edu	Phone:	974-5357
Office Hrs:	Mon/Tue 2:30-4pm Other times by appointment via email	Fax:	974-5456

TAs:	Matthew Morrison	Matthew Shreve
Email:	mamorris@mail.usf.edu	mshreve@mail.usf.edu
Office Hrs:	Mon/Wed 10-12pm	Tue/Thu 10-12pm
Office:	ENB 325	ENB 325

Course website: http://www.cse.usf.edu/~anda/cop4600

COURSE OVERVIEW

An operating system is a program that controls the execution of application programs and acts as an interface between applications and the computer hardware. One of its main responsibilities is to manage resource sharing among the computer's users.

This course explains the issues that influence the design of contemporary operating systems.

COURSE OBJECTIVES

- Understand the principles of modern operating system design.
- Recognize and appreciate the differences among most common operating systems.
- Understand concurrency.
- Learn scheduling techniques.
- Understand main memory management.
- Understand virtual memory management. Be able to evaluate cost and benefits.
- Learn the principles of file management and disk management.

PREREQUISITES

- EEL 4851C or COP4530
- It is assumed knowledge of computer organization, data structures and C programming.

TEXTBOOK (REQUIRED)

Operating Systems Internals and Design Principles, 7th edition, W. Stallings, Prentice Hall.

WORKLOAD AND GRADING

IN-CLASS PARTICIPATION (10%): Small tests will be given in every lecture to be solved during class time. Your class participation and your performance on these tests will be considered.

HOMEWORK ASSIGNMENTS (25%): 12 homework assignments will be assigned roughly at the end of each chapter. They will include the review questions from the end of each chapter and a few problems. Homework assignments must be typed and submitted on Blackboard. Late homework submissions are not accepted.

PROJECTS (35%): There will be two programming projects to be developed in C. The first is to build a shell (or command line interpreter), a fundamental user interface to an operating system. The second is a dispatcher, which is a program that switches the processor from one process to another. Projects must be submitted electronically on Blackboard by the due time. Their approximate due dates are the 7^{th} week and the 13^{th} week, respectively. Late submissions are penalized with 15% per late day.

EXAMS (30%): There will be three in-class, mandatory exams during the semester and an optional final exam. The mandatory exams will cover disjoint topics: OS Overview, Processes, Threads and Concurrency (chapters 1-5) for Exam 1; Deadlocks and Memory Management (chapters 6-8) for Exam 2; and Scheduling and I/O Management for Exam 3. The optional final exam is cumulative (chapters 1-12) and can be used to replace the lowest score of the three exams. The average of the three (best) scores will contribute 30% of the final grade.

For final letter grades I will use the standard scale of A (100-90), B (89-80), C (79-70), D (69-60), and F (59-0). I might also use pluses and minuses on final grades to indicate either a borderline grade or exceptionally outstanding work (A+).

POLICIES

ATTENDANCE: Class meetings will be interactive and you are expected to participate in a meaningful way. Missing one lecture can set you back significantly and add more work for you at home. If you miss a class, you are responsible for finding out about assignments and information. In-class work will be assigned during each session and you will solve it in a group or alone. There is no provision for making up in-class work. If you have a legitimate excuse for an absence, it is important that you provide the supporting documentation.

Students must provide written notice to the instructor at the beginning of each academic term if they expect to be absent for a class or announced examination for the observance of religious holy days.

MISSED EXAMS: If you miss a test, the final exam will replace it. If you miss more than a test with an acceptable documented excuse (i.e., death in the family or serious illness), the final exam score will replace those. You will receive a zero on any test missed without an acceptable, documented excuse.

LATE ASSIGNMENTS: For each day a programming project is late, the grade is reduced by 15%. Late homework assignments are not considered.

ACADEMIC INTEGRITY: Everything you turn in for this class must be your own work. If you are caught cheating, you will receive an FF grade for the class. Material copied from the Web and submitted as your work *is cheating*. Please see the University's Undergraduate Catalog regarding these policies at http://www.ugs.usf.edu.

This course requires you to submit your work to a plagiarism detection site that will be identified by your instructor. In order to comply with federal (FERPA) and state privacy laws, you (students) are not required to include personal identifying information such as your name, SSN, and/or U# in the body of the work or use such information in the file naming convention prior to submitting. Please follow carefully the instructions regarding what identifying information to include. Your submission will be placed in the course grade center in your account and thus can be attributed to you.

ACCOMMODATIONS: Students in need of academic accommodations for a disability may consult with the office of Students with Disabilities Services to arrange appropriate accommodations. Students are required to give reasonable notice prior to requesting an accommodation.

CLASS RECORDINGS: Please do not sell notes from or record class lectures without my permission.

TENTATIVE SCHEDULE

Week	Dates	Topics	Reading
1	08/23, 08/25	Computer System Overview, OS Overview	Ch. 1
2	08/30, 09/01	OS Overview	Ch. 2
3	09/06, 09/08	Process Description and Control	Ch. 3
4	09/13, 09/15	Threads	Ch. 4
5	09/20, 09/22	Threads, Mutual Exclusion and Synchronization	Ch. 5
6	09/27, 09/29	Mutual Exclusion and Synchronization; Exam I	
7	10/04, 10/06	Deadlock and Starvation	Ch. 6
8	10/11, 10/13	Memory Management; Virtual Memory	Ch. 7
9	10/18, 10/20	Virtual Memory	Ch. 8
10	10/25, 10/27	Exam II; Uniprocessor Scheduling	Ch. 9
11	11/01, 11/03	Uniprocessor/Multiprocessor Scheduling	Ch. 10
12	11/08, 11/10	Multiprocessor and Real Time Scheduling	
13	11/15, 11/17	I/O Management and Disk Scheduling	Ch. 11
14	11/22	File Management	Ch 12
15	11/29, 12/01	File Management; Exam III	Ch. 12
Finals	Th 12/08, 10am	Final exam (optional)	Cumulative

Every part of this syllabus is subject to adjustment as the semester progresses. Please contact me as soon as possible if you have particular interests in material that is relevant to the class topic but not covered in enough detail; I will be happy to accommodate reasonable requests for modifications.