

CSC 501 Fall 2004 - Operating System Principles

Official Info: Title: CSC 501 001 Operating System Principles
Call#: 254160
Time: MWF 9:40-10:30am
Location: Room 0150 VC2, Centennial Campus
Final Exam: 8:00-11:00am, Friday, Dec. 10

Instructor: Jun Xu junxu@csc.ncsu.edu
Office Hours: Wednesdays 10:30-Noon, 448 EGRC, or by appointment
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Office Hours: TBD

Web Page: <http://courses.ncsu.edu/csc501/lec/001/>

Email Help: csc501-001-SUP@wolfware.ncsu.edu

Note: This email address directs your email to both the instructor and the TA, and should be used to ask questions that might reveal details not appropriate for the public forums of the message boards. You should always check the message boards before sending email to see if someone else has already asked your question!

Recommended Text:

- *Operating Systems: Internals and Design Principles, 4th Edition* by William Stallings, Prentice Hall.
- *Distributed Systems: Concepts and Design, 3rd Edition* by George Coulouris, Jean Dollimore and Tim Kindberg, Addison-Wesley.

Prerequisites: CSC 244 (Operating Systems), CSC 314 (Data Structures) and MA 421 (Probability). Additional prerequisites include CSC 114 (Intro to C++), CSC 224 (Applied Discrete Mathematics), CSC 234 (Computer Organization & Assembly Language).

Purpose: This class prepares you to understand the internal design issues in operating systems. You will be introduced to advanced topics in multi-threading, synchronization, scheduling, virtual memory, I/O, file system, distributed systems, security, fault-tolerance, and extensibility. The material will be covered in terms of operating systems internals rather than the system interfaces. Current research will be discussed to give a better understanding of open issues in operating systems.

Format:

Lectures: Instructor will lecture most classes, all lecture notes will be available online

Machine Problems: Three to four programming assignments (or projects) for groups of 3 students.

Papers: There will be around ten research paper-reading assignments. You are expected to write critical reviews for each paper. Your reviews will be graded.

Tests: There will be one mid-term, and one comprehensive final exam. Tests will be based on lectures, machine problems and reading assignments. Instructor will provide study guides prior to tests.

Participation: Since it is a graduate class, you are expected to actively participate in class and message board discussion regarding class materials and reading assignments.

Grading:

Weights: MPs 35%, Paper Reviews 10%, Mid-term 15%, Final 30%, Participation 10%

Grade assignment: Grade is based on an individual student's performance, NOT on percentage curves. More A's will be given if the entire class performs well, and vice versa. Your classmates are your collaborators and teammates, not your competitions. It is in your best interest to share information and to provide help in every legal way possible.

Topics: Here is a list of major topics that will be covered:

- Processes, Threads, and Synchronization
- Memory management, virtual memory
- Uni- and Multi-processor scheduling
- I/O, storage systems, and file systems
- Distributed systems and algorithms, peer-to-peer systems
- Distributed file systems
- Advanced topics: protection, security, fault-tolerance, extensibility, and etc.