Course Syllabus
CS 6378 -- Advanced Operating Systems

Instructor

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Course Objectives

The main focus of this course is on distributed and parallel operating systems. It emphasizes both theory and practice. On the theory side, students will be taught fundamental theory in distributed computing. In addition, some special topics in distributed and parallel systems will be covered. As a practical learning experience, students are expected to implement concurrent programs in distributed systems and learn useful system APIs. Programming and theory parts are designed to help the understanding of each other but they have distinct learning goals and focus on different aspects of distributed operating systems. Students are expected to master both areas.

Course Topics

- Concurrent Programming
- Clock Synchronization
- Processor Allocation and Load Balancing
- Distributed Shared Memory Systems
- Mutual Exclusion in Distributed Systems
- Consistent Global State
- Agreement Protocols
- Deadlock in Distributed Systems
- Distributed File Systems
- Parallel Disks -- RAID
- Checkpointing Algorithms
- Concurrency Control for Transaction Processing

Readings

1. **Main Text:** Advanced Concepts in Operating Systems, by M. Singhal and N.G. Shivaratri
2. Programming References
3. Additional papers

Grading

The grades for projects and exams are considered independently for final grade assignment. You have to pass both the standards in order to pass the course.

- Exam Grades
  - Exam 1 -- 50%

- Exam 2 — 30%

- Project Grade
  - Distribution of project grades will be announced during the semester.

Prerequisites

- CS 5348 or CS 4348
- Working knowledge of Unix and C

Policies

Cheating, plagiarism, collusion, and falsifying academic records will not be tolerated and will result in an **F** grade on the course.
The exams are open notes, open books. However, you must not discuss the questions and/or answers with anyone else nor copy or look at anyone else's answers nor seek help from anyone in any way.
You are not allowed to discuss your programming assignments with anyone else. Copying someone else’s program or taking someone else’s program and modifying it to turn it in as your own is considered plagiarism.
There are no make-up dates for missed examinations. Late assignments will not be accepted unless specified in the assignment handouts.