

Syllabus of CS5523: Operating Systems Spring 2014

Time & Loc.:

CS5523 3 hours credit, TR 6:00pm - 7:15pm FLN 3.02.07

Instructor:

Palden Lama

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Office Hours: TR 1:00pm-3:00pm (or by appointment)

Course Description and Learning Objectives:

Operating systems concepts with an emphasis on distributed systems. Topics include process management and threads, inter-process communication, distributed objects and remote invocation, distributed naming and directory services, distributed file systems, middleware such as CORBA, access control and security.

Textbook:

[SGG] *Operating System Concepts*, by Avi Silberschatz, Peter Baer Galvin, and Greg Gagne (I use the 8th edition with Java, but other editions would be OK, too).

[TS] *Distributed Systems: Principles and Paradigms*, 2nd edition, by Andrew S. Tanenbaum and Maarten Van Steen

Grading

The final grade will be composed of

- **Class Participation, Reading[†], and Quizzes** 10%
 - **Midterm** (*close books/notes*) 20%
 - **Assignments** (*problem solving + programming*) ! 30%
 - **Term Project** (TS chapters 9, 11, 12, 13 + Research Papers) 10%
 - **Final Exam** (comprehensive and close books/notes) 30%
- Tue, May 06, 06:00 pm - 08:30 pm

Grades will be assigned as follows:

- $90 \leq \{A\}$; $87 \leq \{A-\} < 90$
- $84 \leq \{B+\} < 87$; $80 \leq \{B\} < 84$; $75 \leq \{C+\} < 80$
- $70 \leq \{C\} < 75$; $65 \leq \{D+\} < 70$; $60 \leq \{D\} < 65$
- E/F: below 60

Assignments

Problem solving assignments: we expect to have 7-8 assignments containing textbook style problems.

Programming assignments: we expect to have 4-5 programming projects.

Officially they will be posted and submitted through the LEARN (f. BlackBoard)

!!!! NO LATE HOMEWORK or PROJECT WILL BE ACCEPTED !!!

Tentative Topics

Part I (Basic Operating System Concepts)

- Introduction to OS SGG Chapters 1 and 2
- Process management SGG Chapter 3
- Threads and implementation SGG Chapter 4
- CPU Scheduling SGG Chapter 5
- Concurrency and synchronization SGG Chapter 6
- Deadlocks SGG Chapter 7
- Memory management SGG Chapter 8
- Virtual Memory SGG Chapter 9

Part II (Distributed Systems)

- Distributed System Models TS Chapters 1 and 2
- Processes and Threads TS Chapter 3
- Networks and Communication TS Chapter 4 (CDK 3 and 4)
- Distributed Objects, RMI TS Chapter 10 (CDK 5)
- Naming TS Chapter 5
- Synchronization TS Chapter 6
- Consistency TS Chapter 7
- Fault Tolerance TS Chapter 8
- Security TS Chapter 9
- Distributed System Examples TS Chapters 11, 12 and 13
- Server Virtualization & Cloud Computing (if time permits)

Prerequisites

- CS 3733 or equivalent: Undergraduate operating systems
- CS 3853 or equivalent: Undergraduate architecture
- Programming experience in C/C++ or Java, and working knowledge of Unix/Linux
- Graduate standing

University Policies and General Information

<http://utsa.edu/syllabus>

Note: The syllabus is subject to minor changes.