CS555 Syllabus—Spring 1999

John Heidemann

March 5, 1999

Class begins January 13 and ends May 3, with January 18, February 15, and March 15 and 17th off. May 5 is the stop day. The final is May 10th, 8am-10am.

This syllabus may be updated over the semester. The most recent version can always be found at http://www.isi.edu/~johnh/WORK/CS555/SP1999/SYLLABUS.

Optional text: [Coulouris94a].


1 Introduction

Class 0 (Jan. 13): Diagnostic exam
Class 1 (Jan. 20): Introduction Overview/Reading [Hanson89a, Levin83a, BernersLee94a]. Homework 1 given out.


Class 2 (Jan. 25): design principles [Saltzer81a, Lampson83a, Clark80a]. (Optional: Text Chapter 2 (Design Goals).)


2 Concurrency

Class 3 (Jan. 27): Monitors and messages [Lampson80a, Hoare78a, Lauer78a]. Homework 1 due, homework 2 given out.


Class 5 (Feb. 3): DSM [Li86a, Carriero85a].


Class 6 (Feb. 8): Causality [Lamport78a, Jefferson85a].


Class 7 (Feb. 10): ISIS and schedulers [Birman93a, Waldspurger94a].


3 Naming/Resource Discovery

Class 8 (Feb. 17): classic naming [Danzig92a, Saltzer82a]. Homework 2 due, homework 3 given out.


Class 9 (Feb. 22): Naming extensions [Pike92a, Sechrest92a, Birrell82a].


Class 10 (Feb. 24): Internet naming [Neuman92b, Neuman89b, Obrazcka93b].


4 File Systems

Class 11 (Mar. 1): Physical file systems I [McKusick84a, Rosenblum91a, Seltzer95a]. (Optional: Text Chapter 7 (File Service: A Model).)


Class 12 (Mar. 3): Physical file systems II [Sweeney96a, Patterson88a].


Class 13 (Mar. 8): Distributed file-systems I [Sandberg85a, Gray89a, Nelson88a]. (Optional: Text Chapter 8 (File Service: Case Studies).) Homework 3 due, homework 4 given out.


(Spring break.)

Class 14 (Mar. 22): Distributed file-systems II [Howard88a, Walker83a, Anderson95a].


5 Replication

Class 15 (Mar. 24): Voting, Coda, Ficus [Gifford79a, Kistler92a, Guy90b].


6 Distributed state

Class 16 (Mar. 29) Distributed state [Chandy85a, Lamport82a]


7 Security

Class 17 (Mar. 31): Security overview [Needham78a, Voydock83a, Schneier96a]. (Optional: Text Chapter 16 (Security).) Homework 4 due, homework 5 given out.


Class 18 (Apr. 5): Key distribution, confinement, logic [Neuman94b, Lampson73a, Burrows90a].


8 Databases

Class 19 (Apr. 7): Databases and OS [Stonebraker81a, Spector85a]. (Optional: Text Chapter 12 (Shared Data and Transactions), 14 (Distributed Transactions))


9 Kernels

Class 20 (Apr. 12): microkernels [Black92a, Wulf74a, Liedtke93a]. (Optional: Text Chapter 18.1–6 (Case Studies).) Paper proposals must be accepted by this date.


Class 21 (Apr. 14): layering [Hutchinson91a, Ritchie84a].


Class 22 (Apr. 19): abstraction [Bershad95a, Bugnion97a]. Homework 5 due, homework 6 given out.


10 Case Studies and Performance Analysis

Class 23 (Apr. 21): Unix, Plan-9, Condor [Ritchie74a, Pike90a, Litzkow88a] .


Class 25 (Apr. 28): Performance studies [Chen96a, Ousterhout90a] .


Class 26 (May. 3): Performance studies, Athena [Chen93b, Champine90a] . Homework 6 due, paper due.


Apr. 29 (stop day). Optional review (if classroom available and students interested).

**Final exam** (May 10), 8–10am. (The original syllabus incorrectly listed the final as on May 4.)