

22C:078 Final - Friday 14 May @ 9:45am (same room as classroom)

- final counts 30% of grade
- final questions cover material from weeks 10-16 (after midterm)

does that mean I can forget everything from the first half of the course?

no. although there won't be new questions over earlier material, you are expected to know about TCP, ports, sockets, routing, parallel programming, and so on.

- format of final similar to midterm exam

Topic: Client/Server RPC

- what are purposes, concepts of RPC
- stateless vs stateful
- synchronous vs asynchronous
- binding / directory service
- implementation issues (TCP vs UDP), marshaling, heterogeneous platforms, etc
- RPC semantics
- nested RPC
- recall online notes

Topic: Time-Stepped Simulation

- simulation state
- simulation time
- rate equations
- online resources about time-stepped simulation

Topic: Discrete-Event Simulation

- simulated objects
- simulation time
- event list & the simulation cycle
- recurrent and statistically generated events

Topic: Distributed Event Simulation

- push vs pull, local vs remote
- coordinating simulation clocks
- when is it safe to process an event?
- invariants for safety
- deadlocks in simulations
- null events - why and when

Topic: Transaction Processing in Databases

- why concurrent transactions are useful
- problems of concurrency (ACID)
- sufficient conditions for safety (serializability)
- atomicity and how to guarantee it
- nested transactions
- types of locking in databases (2PL)
- deadlock prevention, deadlock detection

Topic: Distributed Transaction Processing (Networked Databases)

- coordinator process - coordinates related "sub"-transactions of one transaction
- two-phase commit protocol for atomicity and recoverability
- possibility of distributed deadlock
- deadlock detection algorithms - beware of pitfalls

Topic: Sensor Networks

- proactive and pervasive computing
- motivation and problems of sensor networks
- typical applications of sensor networks
- why sensor networks are not Internet
- some services in sensor networks (time sync, localization, data-centric routing)