

CSCI330: Final Prep Document

Everything from the first exam

- necessarily cumulative
- bring together all of the ideas from the course (well, all of the most important ones)

Thread Synchronization

- Goals
- Problems: race conditions, deadlock
- Solutions (design templates)
- Mechanisms – mutexes, condition variables, semaphores
 - Uses, APIs
- Common problems, solutions

File Systems

- Goals
- Roles
- Files vs File Systems
- Data Structures
 - Metadata, inodes, ...
- Fragmentation
- Functionality/API
- Disk management, Storage
 - Policies, tradeoffs
- Disk Scheduling
 - Policies, tradeoffs
- RAID

Memory Management

- Goals
- Mechanisms
 - VM, Paging, Segmentation, Swapping
 - Purposes, Tradeoffs
- Hardware support
 - MMU, TLB
- Policies (replacement, selection, free space, demand paging, prefetching)
 - Purposes, Tradeoffs
- Challenges
 - Fragmentation, Thrashing
- Locality – spatial, temporal
- Contiguous vs Non-contiguous memory management
- Optimizations

OS Project