

CMSI 387

OPERATING SYSTEMS

Spring 2008

Final Exam Review Sheet

The final exam will take place on May 8, at 11:00am. It will be open everything: book, notes, handouts, and computer (which means that either we must have the test in the Keck lab, or everyone has a laptop that they can use). This guide should help you to prepare for the final properly.

Covered Material

The final exam covers the following areas, including all handouts and sample code that have been distributed in support of this content:

- In detail — SGG Chapters 1–11
- In general — assorted operating system papers by Dijkstra, Brinch Hansen, Hoare, Lamport, etc.
- Working knowledge of how to configure and build a Linux kernel
- Working knowledge of an assortment of prominent operating systems (i.e., the ability to access the process, memory, I/O, and storage functions of these platforms)
- Working knowledge of C and the POSIX APIs
- Ability to express assorted operating system-related data structures and algorithms in code

Sample Tasks and Questions

In addition to the possible questions and tasks for the midterm, you may also be asked to accomplish one or more of the following:

- Define, describe, or discuss some operating system concept presented in class (e.g., context switches, round-robin scheduling, processes vs. threads, the critical section problem, deadlock prevention, main memory fragmentation, and many many more...)
- Provide a Gantt chart and other relevant metrics for process execution based on some set of processes and one or more scheduling policies
- Manually perform some operating system algorithm; for example:
 - A critical section solution for some problem
 - Resource-allocation-graph algorithm for deadlock avoidance
 - Banker's algorithm
 - Contiguous memory allocation for a given set of process
 - Logical to physical address translation
 - Page replacement for a given page reference string and physical memory space
- Given multiple approaches to a particular operating system issue, compare their relative advantages and disadvantages, possibly making a definitive choice for a particular situation
- Answer a “big picture” operating system question — something that tests your understanding of an operating system's overall functionality as well as relevant issues regarding an operating system's design and implementation