CMSI 387/587
OPERATING SYSTEMS
Spring 2010

Midterm Review Sheet

The midterm will take place as scheduled, on March 2. It will be open everything: book, notes, handouts, and computer; thus, we'll hold the midterm in the Keck lab. You may use either your own computer or a Keck lab workstation. This guide should help you to prepare for the midterm properly.

Covered Material

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

- SGG Chapters 1–3, Sections 8.1–8.2, 9.1–9.2, 10.1–10.4, 11.1, and 13.1–13.3
- Working knowledge of "power user"-type operating system activities and information (i.e., the ability to access process details, memory, I/O, and storage functions)
- Working knowledge of commonly-used commands and how to connect them
- Working knowledge of how to configure and build a Linux kernel
- An understanding of the overall structure and key functions of an operating system, including but not restricted to parts from kernels to shells, mechanisms such as interrupts, system calls, and privileged vs. user mode, and activities such as booting, process management, memory management, file systems, and I/O
- An understanding of how processes are modeled and implemented by an operating system

Sample Tasks and Questions

The following represent the types of questions or tasks that you may be asked to accomplish:

- Perform some analysis, critique, or evaluation of an operating system concept (design choices, operating system roles [process management, memory management, file systems, I/O], the boot process) or structure (kernel, interrupts, system calls, privileged vs. user mode, device controllers and drivers, file system drivers)
- Describe a real-world computer issue or activity in more precise, operating system-specific terms (e.g., computer won't boot, computer is slow, "blue screen of death," device doesn't work with a computer, laptop power management, dual-boot computers, etc.)
- "Read" a given snapshot of processes (e.g., what is a process's ID, what is a process's "lineage," which process was the first one created upon boot-up, which process is using the most CPU time, how much memory is a process using, etc.)
- Answer questions pertaining to redirecting/rerouting I/O, whether on the command line or over a network
- Answer questions pertaining to storage devices and file systems, including but not limited to determining disk usage, figuring out mounted devices, and manipulating files
- Answer questions dealing with the process of configuring and building a Linux kernel, such as correcting possible problems or listing specific steps or instructions
- Answer questions regarding C code that uses process-related system calls