

**CMSI 284**  
**COMPUTER SYSTEMS ORGANIZATION /**  
**SYSTEMS PROGRAMMING**  
Spring 2010

## **Final Exam Review Sheet**

The final exam will take place on May 6, at 11:00am. It will be open everything: book, notes, handouts, and computer (which means that we will have the test in the Keck lab, with everyone using either a lab workstation or a personal machine). 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:

- C programming, to the level required by the “C Major” assignment
- Intel assembly language programming, to the level required by the “Art of ASM” assignment
- Content in Intel developer manuals, the Linux 64-bit ABI specification, and the 64-bit ELF object file specification
- Linux system calls
- Assembly language encoding and decoding

### **Sample Tasks and Questions**

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

- Answer a conceptual question about any of the covered material
- Answer a question about a C or Intel assembly language code fragment
- Debug or write a C or Intel assembly language code fragment
- Demonstrate the ability to hand encode or decode a simple Intel assembly language code fragment or byte sequence, respectively
- Correctly interpret and apply information from the covered technical documentation
- Answer a “big picture” computer systems organization/systems programming question — something that tests your overall understanding of “close to the hardware” computing