CS 470 - Operating Systems
Spring 2015 – Midterm Exam Review Sheet

Reminders:

- Monday, March 2, has been set aside as a review for the exam. We will go over homework and answer any questions you have about the material.
- No class on Friday, March 6. The instructor will be out of town at a conference. If you have questions regarding the process scheduling project, you may email them. However, do not expect a timely response as the instructor will be checking email mostly early in the morning and late in the evening during the conference and spring break.

The Midterm Exam will be on Wednesday, March 4. You may bring one 8.5in x 11in sheet of paper with notes on one side to the exam. You may print out the sheet, but it must be in a 10-point font or larger. E.g., please do not photoreduce or print 4 pages on a side. If you handwrite your notes, they may be as small as you like. You may handwrite notes in the margins of a printout.

The exam will consist of questions on the material in Chapters 1-6, with emphasis on Chapters 3-6, and covered in lectures and assignments through Monday, February 23. The material from Sections 5.4, 5.9, and 5.10 (parts we skipped) and from Chapter 7 (main memory, which will be on the final exam) will not be on the exam. The exam will consist of questions similar to the homework problems.

The following is a list of topics that will be emphasized, but it is in no way to be construed as an exclusive list.

1. Operating system types, hardware structures, and software structures.
2. Processes, process communication including shared memory and message queues, and process management.
3. Threads and thread management, and their relationship to processes.
4. Process synchronization, including mutual exclusion algorithms, semaphores, and monitors. You should understand these techniques and how to apply them to problems similar to bounded buffer, readers/writers, and dining philosophers. You may be asked to read programs and comment on their appropriateness as solutions based on the criteria of mutual exclusion, progress, and bounded wait.
5. Deadlocks, the four necessary conditions for deadlock, and identifying when a system is or is not in deadlock.
6. Preemptive and non-preemptive CPU scheduling algorithms such as FCFS, SJF, STRF, priority, and RR.