CSCI 3323 (Principles of Operating Systems), Fall 2016
Review for Midterm Exam

1 Format of the exam

The exam will be in class October 12. You will have 75 minutes. As is usually true for my exams, it is "open book / open notes", which means you can consult paper or electronic copies of the textbook and your notes, sample solutions *from this year only*, your own graded work, and anything on the course Web site. You may not use other books, materials from this course from previous years, a calculator or computer (except as needed to consult allowed sources), or (of course) each other's papers. Some questions will be similar in format to those in the homework assignments; others will be multiple-choice or true/false. You might be asked to write or comment on code/pseudocode, but it's unlikely that you'll be asked to write more than a few lines.

2 Lecture topics to review

You are responsible for all material presented during lecture (except for recent material on memory management); the following is a list of major topics to review:

- History/evolution of operating systems.

- Functions we would like an operating system to provide.

- What functionality we need (and/or can expect) from hardware in order to write a reasonable operating system.

- System calls.

- The process abstraction.

- Implementing processes (what's involved in a context switch, what kinds of things are in a process table, etc.)

- Processes versus threads.

- Why interprocess communication (IPC) is needed.

- Mechanisms for IPC (shared variables, semaphores, monitors, message-passing).

- IPC problems (mutual exclusion, producers/consumers, dining philosophers) and their solutions.

- Scheduling and scheduling algorithms.

- Deadlocks.

3 Reading to review

You should have read all of chapters 1 and chapter 2 and skimmed chapter 6. Probably the best way to approach reviewing the reading is to skim all of it, paying more attention to topics I covered in class, and (re)read the last (summary) section of each chapter.

4   Other tips

You should also be sure to review all homeworks (and sample solutions) and any non-opinion minute essay questions.