Midterm Announcement

When: Thursday after break during the lecture. Please show up a few minutes early so that you can take advantage of the full time available.

Crib sheet: The exam is *closed-book* and *closed-devices*. You may, however, bring one *handwritten* crib sheet on an $8\frac{1}{2} \times 11$ or A4 *colored* sheet of paper. The color of the paper has to be significantly different from white. Preparing a crib sheet can be a useful study aid, so take time in selecting material for it. You may use both sides of the paper and write as small as you like, but you are allowed only one sheet and it must be handwritten.

Material covered: You are responsible for all material covered in the lectures through the lecture on Thursday, March 5, chapters 1-5.4 of the book, and homework 1–7. The course home page has a record of the material covered in lectures.

Practicing for the exam: Review homework problems. If you need more practice, use other problems in the book. The enclosed practice exam has the same header page and the same format as the actual exam. (The actual exam might have a different number of problems, and of course they will be different from the ones enclosed.) Like homework problems, the questions will be on understanding of the material, not memorization of the facts learned in class. **The goal of the practice exam below is to familiarize you with the format of the midterm, not to provide a comprehensive review of the topics covered on the midterm.**

Skills:

- You should be comfortable with using tools from probability we studied. For example, you should be able to calculate the expectation and variance of a random variable. You should be able to use Markov, Chebyshev, and Chernoff/Hoeffding-type inequalities.
- For algorithms we studied, you should know how each algorithm works and the ideas behind its analysis.
- You should be able to use randomized algorithms to design other randomized algorithms with different requirements (e.g., amplify the success probability of a randomized algorithm or convert a Monte Carlo algorithm with 1-sided error to a Las Vegas algorithm[1]).
- Some questions will require you to be comfortable with material covered in the mathematical prerequisites. For example: arithmetic and geometric sums, logarithms and exponents.

[1] A Monte Carlo algorithm is a randomized algorithm whose output may be incorrect with small nonzero probability. A Las Vegas algorithm is a randomized algorithm that is always correct, but may take too long with small nonzero probability.