Math 331 – Fall 2009

Homework 4

Due: September 29, 2009, beginning of the class

Please read the instructions/suggestions written in the syllabus!
All problems are from the 3rd edition of the textbook.
(Ghahramani: Fundamentals of Probability)

- Hand in the following problems:
  - *Page 82-84:* 2, 8, 9
  - *Page 87-88:* 6, 10
  - *Page 96-97:* 1, 9
  - *Page 105:* 2
- Practice problems (you do not need to hand these in!):
  - *Page 82-84:* 3, 11, 17, 18
  - *Page 87-88:* 2, 3, 5, 10
  - *Page 96-97:* 2, 4, 5, 8, 12
  - *Page 105:* 1, 3, 6, 9

  You may also work on any other problem in Sections 3.1-3.4.
- Bonus problem:

  We have an urn containing a white and b black balls with $a > b$ and a second (empty) urn. We draw a ball from the first urn and place it in the second one. We repeat this $a + b - 1$ times, until all balls are taken. What is the probability that after the first draw the second urn will always contain more white than black balls?

Disclaimer: It is easy to find the solutions to (some of) these questions. (E.g. the internet, your fellow classmates ...) However, do NOT consult any of these solutions when working on this assignment or you will learn nothing from it and your chance of passing the course will be greatly diminished. If it becomes apparent to the grader that your solution is copied from existing solutions, you will be assigned a grade of zero for lack of originality.