

## Homework 9

**Due: November 10, 2009, beginning of the class**

PLEASE READ THE INSTRUCTIONS/SUGGESTIONS WRITTEN IN THE SYLLABUS!  
ALL PROBLEMS ARE FROM THE 3<sup>rd</sup> EDITION OF THE TEXTBOOK.  
(GHAHRAMANI: FUNDAMENTALS OF PROBABILITY)

- Hand in the following problems:
  - *Page 339-340*: 1, 2, 3, 5
  - *Page 353-355*: 1, 3, 5 (only the discrete case)
  - *Page 383-384*: 1, 5
- Practice problems (you do not need to hand these in!):
  - *Page 339-340*: 4, 6, 7, 8
  - *Page 353-355*: 2, 15, 16, 17, 20
  - *Page 383-384*: 2, 3,

- Bonus problem:

Suppose that in a store customers arrive according to a Poisson process with intensity  $\lambda$ . Assume that the customers are male or female with probability  $1/2$ , independently of the others. Show that the arrivals of the female customers gives a Poisson process with intensity  $\lambda/2$ .

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.