## MATH 302–Introduction to Probability

MWF 11–12 in Chemistry room D200.

Instructor: Asaf Nachmias Office: Math. Annex 1220, 604-822-3038 email: asafnach@math.ubc.ca Course webpage: http://www.math.ubc.ca/~asafnach/302/ Office Hours: Monday 3-4, Friday 4-5 and by appointment.

**Text:** A First Course in Probability, 8th Edition, by Sheldon Ross. Pearson, 2010. **NOTE:** the 7th edition would do fine. I will not assign exercises directly from the text on the homeworks but may suggest you look at particular exercises for practice.

## **Course Outline**

The course will be based on topics from the first 8 chapters of Ross's text.

- 1. Some elementary combinatorics. Combinations and permutations (Ch. 1)
- 2. Sample spaces, events, axioms of probability (Ch. 2)
- 3. Conditional probabilities, independence and Bayes Formula (Ch. 3)
- 4. Discrete random variables (Ch. 4) and Continuous random variables (Ch. 5)
- 5. Joint distributions, marginal distributions and conditional distributions (Ch. 6)
- 6. Expectation: sums, covariance, moment generating functions (Ch. 7)
- 7. Limit Theorems: weak law of large numbers, central limit theorem (Ch. 8)

## Grading Scheme

%15 Weekly homework%50 Final exam%35 Maximum grade between final exam and midterm exam.

## Homework

Weekly homeworks will be assigned and collected on Wednesday. Homeworks handed in on the following Fri. will be given a \*. Each student has two free \*'s. After that, the grade will be divided by 2. No assignments will be accepted after Fri.

Students who are unable to hand in a homework due to a medical or equivalent excuse will have that homework not count towards their final grade.