MATH302: Introduction to Probability

Spring 2014

Instructor: STEFAN ADAMS

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Course Webpage: http://www.math.ubc.ca/~s.adams/302/index.xhtml

Lectures: Monday, Wednesday, Friday 11-12 h, LSK (Leonhard S. Klinck) building room 201

Office hours: Mondays 16-17 h & Wednesday 13-14 h; MATH main building room 238.

Textbook: *A first course in probability* by Sheldon Ross. The 9th edition is preferred, but the 7th or 8th are also fine. In addition there are interesting resources at http://www.math.uah.edu/stat/.

Course Outline: The course will be based on the first 8 chapters of Ross's book. The following topics will be discussed:

- 1) Some elementary combinatorics, such as combinations and permutations.
- 2) Sample spaces, events, and the axioms of probability theory.
- 3) Conditional probabilities, independence, and Bayes formula.
- 4) Discrete random variables, expected value, and variance.
- 5) Continuous random variables.
- 6) Joint distributions, marginal distributions, and conditional distributions.
- 7) The expected value of sums of random variables, covariance, moment generating functions.
- 8) Limit theorems: the weak law of large numbers and the central limit theorem.

Homework: Nine assignments will be given and marked for credit. Assignments are due at the beginning of class on the due dates specified on the class website. No late assignments will be accepted.

Tests: There will be two 50-minute tests held in week 6 (10th–14th February) and week 11 (17th–21st March). The exact dates and times will be announced in week 1.

Policies: Missing a test normally results in a mark of zero. Exceptions may be granted in two cases: prior consent of the instructor or a medical emergency. In the latter case, the instructor must be noticed within two working days of the missed test, and presented with a doctor's note immediately upon the student's return to UBC. When an exception is granted for a missed test, there is no make-up test, and the final exam mark will be used.

Final exam: There will be a final examination during the April examination period.

Final mark: The final mark will be calculated as follows:

Homework: 10% Tests: 20% each Final exam: 50%

Lecture Notes: Scanned written notes will be available after each class.

Revision lecture: As preparation for final exam a revision lecture will be scheduled.