

INSTRUCTOR: Balázs Ráth

CONTACT: [rathb@math.ubc.ca](mailto:rathb@math.ubc.ca)

COURSE WEBPAGE: [www.math.ubc.ca/~rathb/math302/math302.html](http://www.math.ubc.ca/~rathb/math302/math302.html)

LECTURES: Tue-Thu-Fri 10:00–12:00 and Wed 9:30–10:30, in MATH 100

OFFICE HOURS: Wed 15:00–16:00, Thu 15:00–16:00, in LSK 303C

PROBABILITY UTA AT MLC: Tue 14:00–15:00, Thu 14:00–15:00, in LSK 300

TEXTBOOK: *A first course in probability* by Sheldon Ross. The 9th edition is preferred, but the 7th or 8th are also fine.

COURSE OUTLINE: The course will be based on the first 8 chapters of Ross' 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, and moment generating functions.
- 8) Limit theorems: the weak law of large numbers and the central limit theorem.

GRADING SCHEME: The final grade is constituted as follows:

- 50% Final exam grade
- 35% Midterm exam grade
- 15% Homework grade

MIDTERM: There will be one 50 minute midterm exam during the regularly scheduled class on *July 23*.

HOMEWORK ASSIGNMENTS: Weekly homeworks will be assigned on Friday and collected on the following Friday before the lecture starts. In total, there will be 5 homeworks. The final homework grade will be calculated as the average grade of the 4 highest weekly homework grades.

MISSED MIDTERMS & HOMEWORKS: Missed midterms and homeworks will receive a zero grade. Homeworks that are handed in late will not be accepted.

Exceptions to the above considerations may be granted in the following two cases:

- Prior consent of the instructor.
- Medical emergency. In the case of a medical emergency, the instructor must be notified as soon as possible and presented with a doctor's note immediately upon return to UBC.

When a test is missed or a homework is not handed in, and if an exception has been granted by the instructor, there will be no make-up test or homework: the final exam grade will be used instead.