

Instructor:

Dr. M. Lohmann, ESB 4114, marlohmann@gmail.com

Office hours:

TBA

Course webpage:

<https://www.math.ubc.ca/~marlohmann/math302.html>

Discussion board: We will use the piazza discussion board. The link will be shared soon. You can ask questions regarding the course here. Significant participation in discussions may justify extra credit. Do not share solutions to assignments on piazza before the due date.

Prerequisites: One of MATH 200, MATH 217, MATH 226, MATH 253, MATH 263.

Text: The book “Introduction to Probability” by Anderson, Seppäläinen, and Valkó is recommended as a reference for this course, but is not mandatory. Other references of interest are R.L. Scheaffer, “Introduction to Probability and its Applications”, and S.M. Ross, “A First Course in Probability”.

Outline: The course will include the following topics:

1. sample spaces, events, axioms of probability
2. counting principles, permutations and combinations
3. independence and conditional probability, Bayes formula
4. discrete random variables, expectation and variance
5. continuous random variables, expectation and variance
6. joint distribution and conditional distribution
7. transformation of random variables
8. covariance and correlation
9. moment generating function
10. Tchebycheff inequality
11. law of large numbers and central limit theorem

Evaluation: There will be homework assignments, two midterm exams, and a final exam.

Homework: Nine assignments will be given and marked for credit. The single lowest assignment grade will be ignored. Assignments are due at the beginning of class on the due date. No late assignments will be accepted. The assignment schedule is as follows:

<u>Assignment given</u>	<u>Assignment due</u>
January 12	January 19
January 19	January 26
January 26	February 2
February 2	February 9
February 16	March 2
March 2	March 9
March 9	March 16
March 23	March 28 (Wednesday)
March 28	April 6

Midterm exams: There will be two 50-minute midterm exams held during the regularly scheduled class hours on the following dates:

Wednesday, February 14, Wednesday, March 21.

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 notified 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%