Introduction to Probability

UBC MATH 302-921, Summer Term 1

Instructor:	(Jacob Richey)	**Class Location:**	Zoom
Email:	jfrichey@math.ubc.ca	**Class Day/Time:**	TuThF 3-5, W 3-4
Office Hours:	TBD		
Webpage:	Canvas		

COURSE DESCRIPTION

This course will cover the basics of discrete and continuous probability theory, including some limit theorems for independent variables. **All relevant information, including announcements, lecture recordings / zoom links / homework and exam materials, will be posted to the Canvas page for this course. Check it regularly!**

Course outline

The course will be based on 'Introduction to Probability' by Anderson, Seppalainen and Valko. Alternative useful references include 'A First Course in Probability' by Sheldon Ross, and 'Introduction to Probability' by Grinstead and Snell. Topics to be covered:

- Sample spaces, events, probability axioms
- Conditional probabilities, independence and Bayes' formula
- Discrete and continuous random variables, distribution and density functions
- Expectation and variance
- Joint/marginal/conditional distributions
- Expectation of sums, covariance, moment generating functions
- Limit theorems: law of large numbers and central limit theorem

Lectures

Lectures will be split into two parts: the lecture sessions (labeled L), and the example sessions (labeled E). Each lecture session will be accompanied by an example session. The lecture sessions will focus on new material, usually following the textbook, without doing any examples/problems in depth. The example sessions will go more in depth into exercises and problems related to the lecture.

Evaluation

Final grades will be calculated based on daily homework (1/4), the midterm (1/3) and final (5/12).

Homework

Homework will consist of one/two problems to be completed after each lecture, due electronically before the start of the next lecture. A picture of handwritten solutions or typed solutions are both OK. The homeworks will be graded for completion: full marks for putting in effort to solve the problem(s), even with minor errors, otherwise no marks.

Additionally, a problem set will be posted each week with more challenging problems, e.g. exam level problems. These are not to be turned in, but you should spend time working on them every week. We will

also discuss some of them during the Wednesday class session.

Discussion board
We will use a piazza discussion board this term. You can ask questions regarding the course there. It is encouraged to answer other students' questions there. Significant participation of this type may justify extra credit. Do not share solutions to assignments (on piazza or elsewhere) before the due date.

Midterm
The midterm will take place on Friday, May 28. Format TBD

Final
Date/format TBD

Missed exams/assignments
There are no make-up exams or assignments. Missing the midterm normally results in the weight of the midterm being transferred to the final exam. Personal travel and work conflicts are not considered valid. A student who misses the midterm must submit the Department of Mathematics self-declaration form within 72 hours of the midterm or due date. See the UBC Senate's Academic Concession Policy V-135. A student who misses the midterm and has not completed a significant portion of the course work will not be allowed to write the final exam.