

STAT 547C - TOPICS IN PROBABILITY

Instructor: Alexandre Bouchard-Côté

Time and place: see <https://www.stat.ubc.ca/course-lookup>

Outline:

A graduate level course in probability with an emphasis on how the theory is applied in statistics, for example to construct statistical models (the important roles of independence, multivariate random variables, and stochastic processes), and to invert them (examples drawn from statistics relevant setups such as analysis of statistical estimators, Monte Carlo applications, etc). We will cover a range of topics mainly from a user's point of view, starting from language and foundation, and then focussing on statistics-relevant topics selected from: convergence theorems, characteristic functions, conditioning, Poisson processes, Markov chains.

Prerequisites:

Co-requisite: STAT 460 / 560 or equivalent. Ideally, one upper division undergraduate course in probability, and one in analysis (if you are not sure, come talk to me after one or two lectures).

Textbook: No textbook required, but there will be recommended readings freely accessible via UBC Library drawn from:

G.R. Grimmett and D.R. Stirzaker, Probability and Random Processes, 3rd edition, Oxford, (2001).

E. Çinlar, Probability and Stochastics, Springer-Verlag New York (2011)

Other References:

R. Durrett, Probability: Theory and Examples, 4th edition, Cambridge U. Press (2010).

P. Billingsley, Probability and Measure, 3rd edition, John Wiley & Sons, New York (1995).

More information: information for this course will be posted on Canvas.