

## SELECTED TOPICS IN PROBABILITY AND STATISTICS (3) Stochastic Processes

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Sep 6 – Oct 6, 2023: Tue, 10:30 a.m.–12:20 p.m.  
Burnaby

Dec 18, 2023  
Mon, 12:00–12:00 p.m.  
Burnaby

Oct 11 – Dec 5, 2023: Tue, 10:30 a.m.–12:20 p.m.  
Burnaby

Sep 6 – Dec 5, 2023: Thu, 10:30–11:20 a.m.  
Burnaby

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Dependent on the topic covered.

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Topics in areas of probability and statistics not covered in the regular undergraduate curriculum of the department.

None. Students should have some knowledge of option pricing and undergraduate nonmeasure theoretic probability.

This course is cross-listed with ACMA 830.

As a result of taking STAT 490, students should be able to:

1. Understand the probabilistic foundations needed for stochastic calculus (e.g, sample space, probability measure, sigma-algebra, measurable space).
2. Understand what are stochastic processes as well as the notion of filtration.
3. Compute expectations and conditional expectations (as well as other relevant moments).
4. Understand the notion of independence.
5. Describe what are martingales.
6. Describe and construct the Brownian motion.
7. Apply stochastic integration.
8. Define stochastic differential equation.
9. Apply Ito's lemma.
10. Understand how to construct jump processes.





Falsify



