Finance II
ACTSC 971, Winter 2015

Instructor:	Ruodu Wang, M3 3122, ext. 31569, wang@uwaterloo.ca
Lectures:	6:00 – 7:30 Mondays and Wednesdays, M3 3127.
Office hours:	4:30 – 5:30 Mondays and Wednesdays, or by appointment.
	You are welcome to drop by my office at any time,
	and if I am not occupied I will be happy to answer your questions.

Reference

The primary source of materials is

- Steven E. Shreve. *Stochastic Calculus for Finance II: Continuous-Time Model*. Springer-Verlag, New York, 2004.

Recommended readings:

- Tomas Bjork. *Arbitrage Theory in Continuous Time*. Oxford, 2004.
- John C. Hull. *Options, Futures, and Other Derivatives*. 9th edition, Prentice Hall, 2014.
- Alison Etheridge. *A Course in Financial Calculus*. Cambridge, 2002.

Homework

I plan to set two assignments. Assignments should be handed in to the instructor by the end of the class on the due day. Late assignments are not acceptable.

Midterm

One midterm is scheduled at the lecture time tentatively on Wednesday, Feb 25.

Course Evaluation Breakdown

(1) Assignments 10%;

(2) Midterm 30

(3) Final Exam 60%.

Content and Tentative Schedule

This course has a focus on the probabilistic perspective of financial markets. This schedule is very rough.

Lecture	Topic	Book chapters
Week 1	Review of stochastic calculus and risk neutral evaluation	3-5
Week 2	Brownian motion and its maximum	7
Week 3-4	Exotic options - barrier options	7
Week 5	Other exotic options	7
Week 6	Stopping times	8
Week 7	(Reading week)	
Week 8	(Midterm)	
Week 8-9	American options	8
Week 10	Change of numéraire	9
Week 11-12	Introduction to term-structure models	10
Week 13	Introduction to jump processes	11

If time permits, I will squeeze in some other topics in mathematical finance.

Please note: the online description

"*This course deals with stochastic interest rate models in both discrete time and continuous time. It also covers the theory and practice of instruments such as options, futures, derivative securities and other complex financial instruments.*"

is not very accurate and we are in the middle of a revision process.