Department of Statistical & Actuarial Sciences
The University of Western Ontario
London, Ontario, Canada

FINANCIAL MODELLING 4521B/9521B
(Advanced Financial Modelling)
Winter 2018

Instructor:	Dr Rogemar S Mamon Office: WSC 266 Phone: 519-661-2111 ext 83625 E-mail: rmamon@stats.uwo.ca
Course Website:	Announcements and certain course materials will be posted in the OWL course website. Please check this site before coming to the lectures.
Office Hours:	13:00– 14:30 Tuesday and 14:00-15:30 Thursday To ensure that you are able to see me and do not have to wait as other students may already have a prior appointment, please send me a brief email stating that you would like to have an appointment , the nature of your queries, and the time you will drop by. If the times and days above are not convenient for you, just propose a few alternatives, and the instructor will work around his daily schedules.

missed final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately. For further information please see:
http://www.uwo.ca/univsec/handbook/appeals/medical.pdf

A student requiring academic accommodation due to illness, should use the Student Medical Certificate when visiting an off-campus medical facility. The form can be found here:
https://studentservices.uwo.ca/secure/medical_document.pdf

Or, reqe

5. that out of class the instructor will hold and be available at regularly posted office hours; and
6. that term tests and assignments will be returned within a reasonable period of time after submission.

Attendance
Any student who, in the opinion of the instructor, is absent too frequently from class or lab period in any course, will be reported to the Dean (after due warning has been given). On the recommendation of the Department concerned, and with the permission of the Dean, the student will be debarred from taking the regular examination in the course.

Support Services
Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 ext. 82147 if you have questions regarding accommodation.

The policy on Accommodation for Students with Disabilities can be found here:
www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_disabilities.pdf

The policy on Accommodation for Religious Holidays can be found here:
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

Specific topics to be covered with relevant readings

JH-John Hull's text 8th ed.
JCFZ-J Cvitanic & F Zapatero's textbook

Recap of certain pricing/valuation concepts from Stats 3520. Basic elements of stochastic processes, random walk and their properties, Brownian motion, Itô's lemma, risk-neutral/martingale measure, Black-Scholes PDE, risk-neutral valuation and the connection between pricing PDE and conditional expectation under the martingale measure.
Relevant readin 4 un t

Volatility smiles/smirks, skews and volatility surfaces
Relevant readings: Chapter 20 in JH. No relevant materials from JCFZ.
Estimating Volatilities (ARCH/GARCH)
Relevant readings: Chapter 23 in JH and section 7.8 in JCFZ
Exotic options
Relevant readings: Chapter 26 in JH; and sections 7.5.3 and 7.6 in JCFZ
Basic introduction to stochastic interest rate models (Vasicek and Cox-Ingersoll-Ross models) and term-structure derivatives
Relevant readings: Sections 32.1-32.8 in JH.