

SPRING 2017 - ACMA 395 D100

SPECIAL TOPICS IN ACTUARIAL SCIENCE (3)
Introduction to Financial Mathematics

Class Number: 5989 Delivery Method: In Person

COURSE TIMES + LOCATION:

Mo 12:30 PM – 2:20 PM

AQ 5008, Burnaby

We 12:30 PM – 1:20 PM

AQ 5006, Burnaby

EXAM TIMES + LOCATION:

Apr 21, 2017

8:30 AM – 11:30 AM

AQ 5016, Burnaby

INSTRUCTOR:

Barbara Sanders

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778-782-9074

Office: SC-K10554

PREREQUISITES:

Dependent on the topics covered.

Description

CALENDAR DESCRIPTION:

Topics in areas of actuarial science not covered in the regular certificate curriculum of the department.

COURSE DETAILS:**Prerequisites: ACMA 210 and STAT 285****Course outline:**

This course is an introduction to financial economics for actuaries. Topics covered include:

Forwards and futures: forward contract, prepaid forward contract, mechanics (margin balance, maintenance margin), futures price, no-arbitrage pricing, synthetic forwards

Swaps: commodity swap, interest rate swap, deferred swap, valuation

Options: types, styles, parity and other option relationships

Option strategies and risk management: hedging, arbitrage, spreads (bull, bear, vertical, box, ratio), collar, straddle, strangle, butterfly spread

Option valuation: risk-neutral prices of European and American options, binomial tree, Black-Scholes formula (option Greeks, implied volatility, model assumptions, relationship to lognormal distribution)

Monte Carlo methods: pricing of path-independent and path-dependent options, computing standard deviations, variance reduction techniques

Exotic options: types, application of Monte Carlo methods

This course is accredited under the Canadian Institute of Actuaries (CIA) University Accreditation Program (UAP) for the 2016-2017 academic year. Achievement of the established exemption grade in this course may qualify a student for

exemptions from writing certain preliminary exams. Please note, a combination of courses may be required to achieve a single exemption. Please see <http://www.cia-ica.ca/membership/uap> for full details.

Grading

Assignments	20%
Midterm	30%
Final Exam	50%

NOTES:

All grading is subject to change.

Materials

REQUIRED READING:

Derivatives Markets, 3rd ed. Author: Robert L. McDonald. Publisher: Pearson
ISBN: 9780321543080

RECOMMENDED READING:

Options, Futures, and Other Derivatives, 9th ed. Author: John C. Hull. Publisher: Pearson
ISBN: 9780133456318

DEPARTMENT UNDERGRADUATE NOTES:

Students with Disabilities:

Students requiring accommodations as a result of disability must contact the Centre for Students with Disabilities 778-782-3112 or csdo@sfu.ca

Tutor Requests:

Students looking for a Tutor should visit <http://www.stat.sfu.ca/teaching/need-a-tutor-.html>. We accept no responsibility for the consequences of any actions taken related to tutors.

REGISTRAR NOTES:

SFU's Academic Integrity web site <http://students.sfu.ca/academicintegrity.html> is filled with information on what is meant by academic dishonesty, where you can find resources to help with your studies and the consequences of cheating. Check out the site for more information and videos that help explain the issues in plain English.

Each student is responsible for his or her conduct as it affects the University community. Academic dishonesty, in whatever form, is ultimately destructive of the values of the University. Furthermore, it is unfair and discouraging to the majority of students who pursue their studies honestly. Scholarly integrity is required of all members of the University. <http://www.sfu.ca/policies/gazette/student/s10-01.html>

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