SPRING 2019 - ACMA 340 D100

FINANCIAL ECONOMICS FOR ACTUARIES (3)

Class Number: 3485 *Delivery Method: In Person*

COURSE TIMES + LOCATION:

Mo 8:30 AM – 10:20 AM
WMC 3510, Burnaby

We 8:30 AM – 9:20 AM
WMC 3250, Burnaby

EXAM TIMES + LOCATION:

Feb 27, 2019
5:30 PM – 8:20 PM
WMC 3250, Burnaby

Apr 10, 2019
8:30 AM – 11:30 AM
AQ 5018, Burnaby

INSTRUCTOR:

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Office: SC-K10548

PREREQUISITES:

ACMA 210 and STAT 285.

Description

CALENDAR DESCRIPTION:

Actuarial models and their application to insurance and financial risks. Introductory derivatives: stocks, forwards, futures, swaps. Options: types, styles, parity and other relationships. Option strategies and risk management. Discrete-time models: binomial models, multi-period models. Continuous-time models: Black-Scholes-Merton model. Monte Carlo methods. Exotic options: Asian, barrier, gap options. Quantitative.

COURSE DETAILS:

Outline:

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

Introduction to Derivatives: An Overview of Financial Markets, Role of Financial Markets, Use of Derivatives, Buying and Short-Selling, Forward Contracts, Call Options, Put Options, Options as Insurance.

Option Trading Strategies: Basic Insurance Strategies, Put-Call Parity, Spreads and Collars, Speculating on Volatility.

Forwards and Futures: Alternative Ways to Buy a Stock, Prepaid Forward Contracts on Stocks, Forward Contracts on Stocks, Futures Contracts, Currency Contracts, Commodity Forwards.

Swaps: Understanding Swaps, Computing the Swap Rate in General, Interest Rate Swaps, Currency Swaps, Total Return Swaps.

Put-Call Parity: Put-Call Parity, Generalized Parity and Exchange Options, Comparing Options.

Binomial Option Pricing: One-Period Binomial Tree, Constructing a Binomial Tree, Two-Period Binomial Tree, The General Binomial Tree Model, Pricing Using Real Probabilities, American Options, Options on Dividend-Paying Stocks, Options on Other Assets, Alternative Binomial Trees.

The Black-Scholes-Merton Model: Introduction to the Black-Scholes-Merton Formula, Relationship Between Binomial and BSM Models, Applying the Formula to Other Assets, Option Greeks, Option Elasticity, Profit Diagrams Before Maturity.

Market-Making and Delta-Hedging: What Do Market-Makers Do, Market-Maker Risk, Delta-Hedging, The Mathematics of Delta-Hedging, The BSM Analysis.

Introduction to Exotic Options: Asian Options, Barrier Options, Compound Options, Gap Options, Exchange Options.

Market Efficiency, Behavioural Finance and Project Analysis: Efficient-Market Hypothesis, Behavioural Biases, Cognitive Behavioural Biases, Investment risk Measures, Advantages and Disadvantages of Risk Measures, Risk Analysis.

This course is accredited under the Canadian Institute of Actuaries (CIA) University Accreditation Program (UAP) for the 2018-2019 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

In-class Activities	5%
Oral Presentation	5%
Midterm	40%
Final	50%

NOTES:

Above grading is subject to change

Materials

REQUIRED READING:

McDonald, R. L. (2012). ***Derivatives Markets* (3rd edition).** Pearson.

RECOMMENDED READING:

Hull, J. C. (2015). ***Options, Futures, and Other Derivatives, 9th ed*.** Pearson.

Shreve, S. E. (2004). ***Stochastic Calculus for Finance I: Binomial Asset Pricing Model*.** Springer. Chapter 1

Shreve, S. E. (2004). ***Stochastic Calculus for Finance II: Continuous-Time Models*.** Springer. Chapter 7

Cvitanic, J., and Zapatero, F. (2004). ***Introduction to the Economics and Mathematics of Financial Markets.*** The MIT Press.

DEPARTMENT UNDERGRADUATE NOTES:

Students with Disabilites:
Students requiring accommodations as a result of disability must contact the Centre for Accessible Learning 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://www.sfu.ca/students/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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