SPRING 2017 - ACMA 490 D100

SELECTED TOPICS IN ACTUARIAL SCIENCE (3)
Stoch. Analysis of Insurance Portfolio

Class Number: 5987 *Delivery Method: In Person*

COURSE TIMES + LOCATION:

Mo 2:30 PM – 4:20 PM
AQ 2120, Burnaby

We 2:30 PM – 3:20 PM
AQ 2120, Burnaby

INSTRUCTOR:

Gary Parker
gparker@sfu.ca
1 778 782-4818
Office: SC-K10562

PREREQUISITES:

Dependent on the topic covered.

Description

CALENDAR DESCRIPTION:

The topics included in this course will vary from term to term depending on faculty availability and student interest.

COURSE DETAILS:

Selected Topic: **Stochastic Analysis of Insurance Portfolios**

Pre-requisite:
ACMA 320 & permission of the instructor

Course Description:
Life insurance models. Interest rate models for life insurance: time series, stochastic differential equations, estimation. Portfolios of identical policies. Diversified portfolios.

Outline:

Basic model for studying life insurance contracts

Models for the Rate of return:

>Time Series; ARMA models

>Stochastic Differential Equations; Ito's formula, log-normal model, Ornstein-Uhlenbeck process, Cox-Ingersoll-Ross model, Principle of covariance equivalence

>Other models: Regime-switching model, Wilkie model

Insurance risk: One contract, A portfolio of identical contracts

Life Insurance with Random Interest and Mortality: Present value, net single premium

Portfolio of Policies with Random Interest and Mortality: moments

Distribution of the Present Value of Benefits for a Portfolio

>Approximating the Distribution; Limiting Portfolio

Diversified portfolios

Grading

Assignments & Term Project	30%
Midterm	30%
Final	40%

NOTES:

All grading is subject to change.

Materials

RECOMMENDED READING:

Stochastic Analysis of Insurance Portfolios, G. Parker, 2013

DEPARTMENT UNDERGRADUATE NOTES:

Students with Disabilites:
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.

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