

FALL 2014 - ACMA 490 D200

SELECTED TOPICS IN ACTUARIAL SCIENCE (3)*Delivery Method: In Person***COURSE TIMES + LOCATION:**

Mo 9:30 AM – 12:20 PM

AQ 4125, Burnaby

INSTRUCTOR:

Gary Parker

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778-782-4818

Office: SC-K 10562

PREREQUISITES:

Prerequisite: : 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 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 send an email to stat@sfu.ca with "Tutor Request" in the subject line. Please only include information that you would like forwarded to our tutors mailing list (contains people external to the University). We accept no responsibility for the consequences of any actions taken related to tutors.

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