Students requiring accommodations as a result of disability, must contact the Centre for Students with Disabilities 604-291-3112 or csdo@sfu.ca

Instructor: Dr. Gary Parker

Prerequisite:

ACMA 320

Required Text:

No textbook required.

References:

Stochastic Analysis of Insurance Portfolios, G. Parker, 2006

Calendar 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
- Insurance risk: One contract, A portfolio of identical contracts
- Models for the Interest Rates: Time Series; ARMA models
  - Stochastic Differential Equations; Ito formula, Linear Differential Equations, Ornstein-Uhlenbeck process, Second order stochastic differential equations
  - Principle of covariance equivalence
- 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 Scheme:

Assignments & Term Project-30%
Midterm-30%
Final-40%
Grading is subject to change.

Revised October 2006