*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 425 and Instructors permission.

**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 June 12, 2007