

FALL 2018 - ACMA 490 D100

**SELECTED TOPICS IN ACTUARIAL SCIENCE (3)  
Actuarial Models**

Class Number: 3003 Delivery Method: In Person

**COURSE TIMES + LOCATION:**

Mo 2:30 PM – 4:20 PM

RCB 6100, Burnaby

**INSTRUCTOR:**

Yi Lu

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Office: SC-K10558

**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:****Course Title: Advanced Actuarial Models****Pre-requisites:**

ACMA 335 and ACMA 395 from 1167 titled "Loss Models I". STAT 380 is recommended

**Course Description:**

Advanced non-life insurance mathematics. Individual risk models, collective risk models, ruin models. Actuarial reserve models: Bonus-malus system, IBNR techniques. Generalized linear models in Actuarial Science.

**Course Outline:**

The main objective of this course is to review advanced actuarial models in non-life insurance and to introduce some methods which are relevant for actuarial practice. The topics covered by this course are the following:

1. Some topics on individual risk models and collective risk models.
2. Classical risk process and ruin theory.
3. Some practical methods: Bonus-malus system, IBNR techniques.
4. Topics on generalized linear models (GLM) with applications in actuarial statistics.

## Grading

Assignments, Presentation, and Project	50%
Exam	50%

**NOTES:*****Above grading is subject to change.***

## Materials

**RECOMMENDED READING:**

Loss Models, 4th Edition, 2012, by S.A. Klugman, H.H. Panjer and G.E. Willmot; Publisher: Wiley.

An Introduction to Mathematical Risk Theory, 1979, by H.U. Gerber; Publisher: S.S. Huebner Foundation for Insurance, U. of Pennsylvania

Modern Actuarial Risk Theory, 2001, by R. Kaas, M. Goovaerts, J. Dhaene and M. Denuit; Publisher: Kluwer Academic Publishers.

A Course in Credibility Theory and its Application, 2005, by Hans Bühlmann and Alois Gisler; Publisher: Springer.

Stochastic Processes for Insurance and Finance, 2000, by T. Rolski, H. Schmidli, V. Schmidt and J. Teugels, Wiley.

Stochastic Claims Reserving Methods in Insurance, 2008, by M.V. Wüthrich and M. Merz, John Wiley & Sons, Ltd.

Bonus-Malus Systems in Automobile Insurance, 1995, by J. Lemaire, Kluwer Academic Publishers.

Insurance Risk and Ruin, 2005, by D.C.M. Dickson, Cambridge University Press.

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**DEPARTMENT UNDERGRADUATE NOTES:**

**Students with Disabilities:**

Students requiring accommodations as a result of disability must contact the Centre for Accessible Learning 778-782-3112 or [csdo@sfu.ca](mailto: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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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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