

FALL 2018 - ACMA 821 G100

**ADVANCED ACTUARIAL MODELS (4)**

Class Number: 6492 Delivery Method: In Person

**COURSE TIMES + LOCATION:**Mo, We 2:30 PM – 4:20 PM  
RCB 6100, Burnaby**INSTRUCTOR:**Yi Lu  
yilu@sfu.ca  
1 778 782-7231  
Office: SC-K10558**PREREQUISITES:**

ACMA 335.

## Description

**CALENDAR 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 DETAILS:****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 &amp; 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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**GRADUATE STUDIES NOTES:**

Important dates and deadlines for graduate students are found here: [http://www.sfu.ca/dean-gradstudies/current/important\\_dates/guidelines.html](http://www.sfu.ca/dean-gradstudies/current/important_dates/guidelines.html). The deadline to drop a course with a 100% refund is the end of week 2. The deadline to drop with no notation on your transcript is the end of week 3.

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**REGISTRAR NOTES:**

SFU's Academic Integrity web site <http://students.sfu.ca/academicintegrity.html> is filled with information on what is meant by academic dishonesty, where you can find resources to help with your studies and the consequences of cheating. Check out the site for more information and videos that help explain the issues in plain English.

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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