



ACMA 490

Selected Topics: Actuarial Models

Fall 2012
Day Course

Students requiring accommodations as a result of disability must contact the Centre for Students with Disabilities 778-782-3112 or csdo@sfu.ca

Instructor: [Dr. Yi Lu](#)

Prerequisite:

ACMA 335 and STAT 330. STAT 380 is recommended.

Recommended Text:

- *Loss Models*, 3rd Edition, 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.

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.

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 Scheme:

Assignments, Presentation and Project: 50%

Exam: 50%

Grading is subject to change.

Students should be aware that they have certain rights to confidentiality concerning the return of course papers and the posting of marks. Please pay careful attention to the options discussed in class at the beginning of the semester. Students are reminded that Academic Honesty is a cornerstone of the acquisition of knowledge. Scholarly integrity is required of all members of the University. Students are encouraged to review policies pertaining to academic integrity available on Student Services webpage at <http://students.sfu.ca/academicintegrity.html>

Revised August 21, 2012