

STA4059H, Insurance Risk Models 1, Fall 2013

<i>Lecture times, location</i>	Wed 18:00 p.m. - 21:00 p.m. – SS1083
<i>Instructor</i>	Dr. Andrei Badescu, SS6024 tel: 416-946-7582 fax: 416-978-5133 badescu@utstat.toronto.edu
<i>Instructor office hours</i>	Wednesday: 13:00 p.m.- 14:00 p.m. – SS6024 or by appointment.

Course Objective:

This course is designed to introduce you to some research topics in Mathematical Risk Theory.

Texts

I will use different books and several research papers. There is no mandatory textbook required. The notes from class will suffice.

- **Insurance Risk Models**, 1992, H. Panjer, G Willmot.
- **Introduction to Matrix Analytic Methods in Stochastic Modeling**, 1999, G Latouche, V. Ramaswami.
- **Lundberg Approximations for Compound Distributions with Insurance Applications**, 2000, G. Willmot, S. Lin.
- **Insurance Risk and Ruin**, 2005, D. Dickson.
- **Loss Models – Further Topics**, 2013, S. Klugman, H. Panjer, G. Willmot

Approximate Coverage:

1) *Aggregate claim distributions*

- Severity Distributions
 - Coxian and related distributions
 - Mixture of Erlangs distribution
 - Subclasses
 - Distributional properties
 - Denseness
 - Phase-type distributions
- Frequency distributions
 - Markovian Arrival Process (if time permits)

2) *Ruin Theory*

- The classical one dimensional ruin model
 - Ruin probability
 - Gerber-Shiu discounted penalty function
 - Dividends
- Multi-dimensional ruin theory

Marking Scheme:

The final course mark will be determined via 1 in-class test, worth 50% and a final presentation worth 50%. The final presentation will be based on research papers assigned to you in class. These weights will not be changed, either for the whole class or for any individuals.

Test - TBA, most probably 25 September, 1 ½ hours – in class.
Oral Presentation - last week during the last lecture.

Missed Test:

There will be no written make-up test. If you miss the term test, you are required by faculty regulation to submit, **within one week**, appropriate documentation to the course instructor or the Departmental office: SS6018. Print on the documentation your name, student #, the course number and the date. I shall be skeptical about accepting medical certificates unless the doctor specifically indicates that in his/her opinion there was a disabling health problem on the day of the test. If your documentation is accepted, there will be an oral examination of 1 ½ hours at a time decided by the instructor.

Deadline to drop the course – 18th of September.

Updates

Blackboard will be used for all the information related to this course. The student should check this regularly.