STA4059H, Insurance Risk Models 1, Fall 2013

<table>
<thead>
<tr>
<th>Lecture times, location</th>
<th>Wed 18:00 p.m. - 21:00 p.m. – SS1083</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor</td>
<td>Dr. Andrei Badescu, SS6024</td>
</tr>
<tr>
<td></td>
<td>tel: 416-946-7582</td>
</tr>
<tr>
<td></td>
<td>fax: 416-978-5133</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:badescu@utstat.toronto.edu">badescu@utstat.toronto.edu</a></td>
</tr>
<tr>
<td>Instructor office hours</td>
<td>Wednesday: 13:00 p.m.- 14:00 p.m. – SS6024</td>
</tr>
<tr>
<td></td>
<td>or by appointment.</td>
</tr>
</tbody>
</table>

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.

- **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 1/2 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 1/2 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.