ACT350 H1F - Applied Probability for Actuarial Science

Lecture:	Monday 12:00 — 15:00, University College 163
Instructor:	Prof. Silvana Pesenti, Hydro Building 9105 silvana.pesenti@utoronto.ca
Office Hours:	Tuesday 10.00-11.00; by appointment.
Teaching Assistants:	Kathleen Miao

Course description: The course offers an introduction to probability theory and stochastic processes. This course lays the foundation for actuarial students to understand the concept of stochastic processes with particular emphasis on Markov chains which are of great importance in Life Contingencies and Property and Casualty insurance.
Specifically, the course will cover:

- conditional probabilities and expectations
- Poisson processes
- discrete-time and continuous-time Markov chains
- simulation of stochastic processes

Prerequisites: ACT240H1 (minimum grade 63%); ACT245H1 (minimum grade 63%); ACT247H1 (minimum grade 63%), STA257H1
Corequisite: MAT237Y1/ MAT257Y1

Course materials: The course is loosely based on the book *Stochastic processes* by Sheldon M. Ross, 2^{nd} ed., ISBN: 978-0-471-12062-9; available in the bookstore. The book is not required.

Academic integrity: We adhere to the Academic Integrity policy of the University of Toronto, accessible on the course homepage of Quercus and the U of T homepage.
Course materials provided during the lectures, tutorials, computer labs, and on Quercus are for the use of students currently enrolled in this course only. Providing course materials to anyone outside of the course is unauthorised use.

Course outline: All lecture, tutorials, and computer lab will be in person. There will be no recording of lectures, tutorials, and computer lab.
In the weeks indicated below there will be either tutorials or computer lab. Week number

1 corresponds to the week of the first lecture.

Week No.	Date	Tutorials (T) / Lab (L)	Location	Time
week 2	19.09.2022	T	in person	14.10-15.00
week 4	03.10.2022	T	in person	14.10-15.00
week 5	**Thanksgiving: no lectures or tutorials**			
week 6	17.10.2022	L	in person	12.10-14.00
week 6	17.10.2022	T	in person	14.10-15.00
week 8	31.10.2022	T	in person	14.10-15.00
week 9	**Reading week: no lectures or tutorials**			
week 10	14.11.2022	L	in person	13.10-15.00
week 12	28.11.2022	T	in person	14.10-15.00
week 13	05.11.2022	T	in person	14.10-15.00

Grading scheme (detailed in the table below):

Assessment	Due date	Grade count
Quiz 1	Friday 30. Sept.	3%
Quiz 2	Friday 14. Oct.	3%
Group Project 1	Friday 28. Oct.	20%
Group Project 2	Friday 02. Dec.	20%
Quiz 3	Friday 18. Nov.	3%
Final exam	TBC	51%
		100%

Quizzes: The quizzes are done directly through Quercus. You will have a limited time for each quiz, however, each quiz will be available the entire Friday (9am - 9pm). There is only one attempt per quiz.

Group Project: The project may include both theoretical questions as well as implementations in the programming language `R`. Group projects will be made available on Monday 17. Oct and Monday 21. Nov, respectively.

Missed quizzes and projects: There will be no make-up tests for quizzes. Missed quizzes will have their grading weights shifted to the final exam. Missed project due to illness requires a University of Toronto Student Medical Certificate, completed by a doctor, and handed in to the course instructor within one week of the assessment's deadline date. A missed project, with an under U of T guidelines *accepted* reason, will have their grading weights shifted to the final exam. If 25% or more of the total course grade count is missed (e.g., one project and one quiz) there will be a minimum of a 30 minutes oral mark-up exam.

Late penalty policy of projects: Late submission of projects will have a grade deduction of 10% per day of late submission.

Communication: Announcements will be given during lectures or through Quercus; messages through the Inbox of Quercus will not be responded.
For any questions about the course content including assessments, please come to my office hours. Emails to the instructor need be from a U of T address and should only be of private matters (e.g missed tests, ...).