

Math 4281: Ruin and Credibility - Winter 2021

Course instructor: Andrew Fleck

Course description: A comprehensive introduction to intermediate - level mathematical risk theory. The course begins with an introduction of preliminary material. This is followed up by introducing a dynamic approach to risk measurement and the notion of prospective experience rating. Topics include probability of ruin, adjustment coefficient, Lundberg's inequality, credibility theory, simulation. The course ensures an adequate preparation for exam C of the Society of Actuaries. Prerequisite: MATH 2131.

Course readings:

There is no required text. I will provide what is absolutely required online. Although I imagine most of you probably own *Loss Models: From Data to Decisions, 5th Edition* by Klugman et al. This text will contain much of the material we will cover in class (mostly in chapters 9 and 17-19) and I may use it for examples and problem sets.

Additionally a book I found useful when researching this course was *Non-Life Insurance Mathematics* by Thomas Mikosch. Mikosch's style is very straightforward and concise I find.

Technical requirements for taking the course: The lectures will be delivered via zoom, recorded, then posted to eClass. Additionally this course requires the use of crowdmark for submitting examinations. Students are required to have access to minimum technology requirements to complete examinations. Students will need to become familiar with the crowdmark **at least** five days before exam(s). You will see I have posted a small "icebreaker" on eclass that will double as a crowdmark test. For technology requirements, Frequently Asked Questions (FAQs) and details about the online proctoring service visit [here](#). Please share any IT accommodation needs with me as soon as you are able.

Here are some useful links for student computing information, resources and help:

- [Student Guide to Moodle](#)
- [Zoom@YorkU Best Practices](#)
- [Zoom@YorkU User Reference Guide](#)
- [Student Guide to eLearning at York University](#)
- For determining internet connection and speed, [Speedtest](#).

Times and locations: I will deliver the lectures via zoom at 1-2:30 EST Tuesdays and Thursdays. Please note that this is a course that depends on remote teaching and learning. There will be no in-person interactions or activities on campus.

Virtual office hours: Thursdays 2:30-4 after the lecture.

Course webpage: [eClass](#)

Organization of the course: Lectures will be delivered over zoom and posted to eClass afterwards. The entire course, including the submission of assignments, participation/discussion and test-taking, will take place on the course's eClass. This course has no live virtual meetings outside of office hours. Like an online course, you can learn the course material at your own pace, following the schedule of readings and activities.

Important Dates:

First Class	Jan. 12
Last date to add a course w/out permission	Jan. 25
Winter Reading Week	Feb. 13-19
Drop deadline: Last date to drop a course without receiving a grade	March 12
Last Class	April 1
Winter examinations	April 14-28

Evaluation:

Due to the (mostly) non-overlapping nature of the three main sections of the course we will have 3 noncumulative tests worth 30%. Furthermore there will be weekly quizzes typically due Fridays on the previous week's lecture material worth 10%.

Course policies:

Assignment Submission: Assessments will be handed in via moodle i.e. not physically or through email.

Lateness Penalty: Assessments received later than the due date will not be accepted. Exceptions to the lateness penalty for valid reasons such as illness, compassionate grounds, etc., may be entertained by the Course Instructor but will require supporting documentation (e.g., a doctor's letter).

Missed Assessments: Students with a documented reason for missing a course test, such as illness, compassionate grounds, etc., which is confirmed by supporting documentation (e.g., doctor's letter) be allowed to write a make-up examination.

Academic honesty and integrity: In this course, we strive to maintain academic integrity to the highest extent possible. Please familiarize yourself with the meaning of academic integrity by completing SPARK's Academic Integrity module at the beginning of the course. Breaches of academic integrity range from cheating to plagiarism (i.e., the improper crediting of another's work, the representation of another's ideas as your own, etc.). All instances of academic dishonesty in this course will be reported to the appropriate university authorities, and can be punishable according to the Senate Policy on Academic Honesty.

A personal note: On the topic academic honesty, I would just like to make an overture of my own. Under the assumption that many of you are taking this course as a supplement to the SOA Exams and given that you are all (presumably) upper year students I have not included assessments to specifically weed out cheating e.g. oral exams and the like. If however I feel that my trust is misplaced I will take extra measures which will make everyone's life more difficult. So please be considerate going forward.

Additional Information All students are expected to familiarize themselves with the following information:

- [Student Rights & Responsibilities](#)
- [Academic Accommodation for Students with Disabilities](#)
- [Course Information document](#)