ACT 240H1F, Fall 2021 Mathematics of Finance for Non-Actuaries

Lecture Section	**L0101 Monday, Friday**
Lecture times, location	***Monday: Lectures*** 11 am - 1pm – online for now on ZOOM, Link provided on Quercus ***Friday: Tutorials*** 10 am -11 am, online for now on ZOOM, Link provided on Quercus Further changes to in person will be decided as the terms goes by.
Instructor	Dr. Andrei Badescu Email: andrei.badescu@utoronto.ca
TA tutorials	TBA – on ZOOM details to be announced on Quercus Bai Sirui – for students assigned to room MS3278 Han Yilin - for students assigned to room UC244 Welsh Liam - for students assigned to room SS1074

Texts:
Required
ACT240 Revised book 2021-2022**,** Samuel A Broverman, Navigate to the **Digital Course Materials** section on the University of Toronto Bookstore Website at https://uoftbookstore.com/textbooks/access_codes.asp?
From here, scroll down the list and select your course, which appears as:

- STG ACT240F/ ACT240 & ACT245 Coursebook
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Additional
- Mathematics of Investment and Credit, 6th. Ed., Samuel A Broverman, ACTEX Publications, 2016
- Kellison, S.G., The Theory of Interest (Third Edition), 2009, Irwin/McGraw-Hill

Course Objective

This course is designed to help prepare you for exam FM of the Society of Actuaries and for future university courses. You are expected to read and understand the descriptive portions of the text yourself. Questions and in-class/online discussions are encouraged.

Approximate Coverage

- Interest Rate Measurement – Sections 1-3
- Valuation of Annuities – Sections 4 - 8
- Loan Repayment – Section 9
- Bond Valuation – Sections 10 – 11
- Measuring the Rate of Return in a Fund – Section 12

Teaching style:

I am going to use past materials that will be uploaded in the weekend for the following week. During the lecture times I will come on ZOOM (a recurring link will be provided to you) and go over the notes and answer all your questions, have discussions etc. This will give students the chance to go over the notes and/or listen to the lecture ahead of the

class time. There will be multiple files and recordings. Please keep saving the files on you computers, as at some point in time, when I will run out of space, I may need to delete some of the older notes.

If we will be allowed to go in person, we will decide on some lectures to be hold in person in the designated classroom.

Test:

Term tests

- Test 1 - 4th of October 2021, online from 11:00 am - 12 00 pm – the test will run online on Quiz from Quercus, further details will be provided – 25% of the final mark
- Test 2 – 15th of November 2021, online from 11:00 am - 12 00 pm – the test will run online on Quiz from Quercus, further details will be provided – 25% of the final mark

- **Final Exam 2 hours TBD – 50% of the final mark.**

Marking Scheme:

The final course mark will be determined via two term tests, each worth 25% and a final exam worth 50%. These weightings will not be changed, either for the whole class or for any individuals. The test and final exam will be in a combination of multiple choice questions and written answer questions.

Missed Term Test: YOU ARE NOT ALLOWED TO MISS MORE THAN ONE TEST. If by valid reasons you missed one term test, the 25% weight of the mark associated to the test will be moved towards the final exam and the final exam will count for 75%. Students who will miss both term tests will lose automatically 25% of the final mark and the remaining 25% will be moved to the final that will only count for a maximum of 75%. **There is no deferred final exam for this class.**

Calculator
A calculator is essential for working exercises, tests and final exam. The Texas Instruments BA II PLUS calculator is one of the calculators allowed on the Society of Actuaries examinations; it has the financial functions that would be needed for this course, and is recommended. It is necessary for ACT240 that your calculator be able to solve for the interest rate i in calculations such as $10(1+i)^4 + 20(1+i)^3 + 30(1+i) = 160$. ONLY the non-programmable calculators are allowed.

E-mail policy:

E-mails will only be answered if they are from a U of T address. When there are many e-mail requests, not all can be answered, but an answer to a common question will be posted on the Quercus.

Updates:

All the possible updates regarding to this course will be made in class and on Quercus.

UAP course syllabus:

"**Canadian Institute of Actuaries (CIA)'s University Accreditation Program (UAP)**
I. ACT348 is an accredited course under the UAP program. The minimum grade needed to apply for an exemption is xx. For detailed information on UAP, please visit the following webpages:

- University Accreditation Program description (https://www.cia-ica.ca/membership/university-accreditation-program-home)

- List of accredited courses offered by University of Toronto: https://www.cia-ica.ca/membership/university-accreditation-program-home/accredited-universities/accredited-university-detail?pav_universityid=06f6b138-61e5-e511-80b9-00155d111030
- How to apply for CIA exemptions: https://www.cia-ica.ca/membership/university-accreditation-program-home/information-for-candidates/obtaining-uap-credits

II. Note: The CIA will grant credits to students for SOA/CAS examinations based on the achievement of the minimum Grade towards Associateship (ACIA) and Felllowship (FCIA) in the CIA. At the time of this agreement, CIA credits are recognized by the following actuarial organizations towards their respective designations:
III. Casualty Actuarial Society (CAS): ACAS, FCAS
IV. UK Institute and Faculty of Actuaries (IFoA): FIA, AIA
V. Institute of Actuaries of Australia (IAA): AIAA, FIAA
VI. Actuarial Society of South Africa (ASSA): AMASSA, FASSA
VII. American Academy of Actuaries (AAA): MAAA
VIII.
IX. The CIA does not guarantee that credits granted to students under the CIA UAP will be recognized by any other actuarial organizations towards their actuarial designations. "

For "minimum grade" ACT240: 70