

ACT 240H1F, Fall 2023 Mathematics of Investment and Credit

Lecture Section	L0101 Monday, Friday	
Lecture times, location	<p>Monday: Lectures 11 am - 1pm – in person EM001</p> <p>Friday: Tutorials 10 am -11 am, in person in EM320, EM119 and EM108</p> <p>First tutorial is on Sept 22</p>	
Instructor	<p>Dr. Andrei Badescu Email: andrei.badescu@utoronto.ca</p>	
TA tutorials	Pak Hop Chan – EM320	ph.chan@mail.utoronto.ca
	Brandon Tam – EM119	brandontam.tam@mail.utoronto.ca
	Kathleen M – EM108	k.miao@mail.utoronto.ca

Prerequisites

[MAT137Y1](#) (minimum grade 63%)/[MAT157Y1](#) (minimum grade 60%)

Texts: Required

ACT240 last version 2022 or 2023 (not sure which is the last version), Samuel A Broverman, you need to buy it at the University of Toronto bookstore.

Additional

- Mathematics of Investment and Credit, 6th. Ed., Samuel A Broverman, ACTEX Publications.
- 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:

All the lectures will be in person. I will post the pdf files for the lectures on Quercus. This will give the students the chance to go over the notes and be able to pay attention to the class explanations.

Test:

Term tests

- Test 1 – 16 of Oct 2023, 11:10 – 12:10 pm in person TBA
- Test 2 – 20 of Nov 2023, 11:10 – 12:10 pm in person TBA

- **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 tests and final exam will be in written answer form.

Missed Term Test: Both term tests are mandatory!!! If by valid reasons you miss 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%. In exceptional cases, students who miss both term tests will be asked to do an oral exam that will test the material taught in class up to the date of the oral exam. The oral exam will have **to be within a week** after the second missed term test. The final mark will consist of 25% the oral exam and 75% of the final exam.

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. All 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 Quercus.

Updates:

All the possible updates regarding to this course will be made in class and in Quercus. The student should check Quercus regularly.

UAP course syllabus:

This course is one of the mandatory courses under Canadian Institute of Actuaries (CIA)'s University Accreditation Program (UAP). UAP has moved away from the course-by-course accreditation method and

towards program accreditation method (the "Pathway 1 of CIA qualification"). Under the new pathway, in order to obtain ACIA (Associate of CIA) professional credential, students need to:

1. Complete a degree from an actuarial program (ACT Specialist or Major) at University of Toronto and pass a list of mandatory courses. No minimum course grade or GPA is required as long as students pass all the mandatory courses. The full list of UofT's 16 mandatory courses are: ACT240, ACT245, ACT247, ACT348, ACT349, ACT370, ACT451, ACT452, ACT466, STA257, STA261, STA302, STA314, ECO101, ECO102, MGT201/RSM219.

For transition: CIA will accept an actuarial degree from UofT completed between June 30, 2015 and October 31, 2023 without all the specified mandatory courses.

2. Complete the ACIA Module (administered by CIA, projected Spring 2023).

For transition: a student can be exempt from the ACIA Module if they complete SOA exam PA and the 8 FAP Modules and assessments by December 31, 2023.

3. Complete an open-book ACIA Capstone Exam (administered by CIA, projected Fall 2023).

For transition: a student can be exempt from the capstone exam by completing any combination of UAP credits or exams for P, FM, IFM, LTAM, STAM and SRM by October 31, 2023. The deadline to apply for UAP credits is September 30, 2023.

Details on the new pathway for students can be found here: <https://education.cia-ica.ca/acia/acia-for-accredited-university-students/>