

ACT 240H1F L5101 Mathematics of Investment and Credit

Instructor:

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Teaching Assistant:

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Room: SS1091

Class Times: (Both Lectures and Tutorials)

Days: Mondays and Wednesdays

Lectures: 6:00PM – 9:00PM

Room: SS2110

Tutor's Office Hours: 2:00PM – 4:00PM (Thursdays)

Room: SS1091

Textbook:

(Required) Exam FM Study Guide, Samuel A. Broverman. This study guide is sold by the Actuarial Science Club; for more info contact uoftactsci@yahoo.ca .

(Reference) Mathematics of Investment and Credit, 5th Edition, Samuel A. Broverman, ACTEX Publications, 2010.

Course Objective:

The aim of this course is to provide an understanding of the fundamental concepts of financial mathematics, and how those concepts are applied in calculating present and accumulated values for various streams of cash flows. These cash flows are viewed as a basis for future use in reserving, valuation, pricing, asset/liability management, investment income, capital budgeting and valuing contingent cash flows. The candidate will also be given an introduction to financial instruments.

Coverage:

- Time Value of Money
 - Students will be able to understand the concepts as it relates to: the rate of interest, simple interest, compound interest, accumulation function, future value, current value, present value, the net present value, discount factors, the rate of discount, convertible m-thly, nominal rate, effective rate, inflation, real rate of interest, force of interest and equation of value.
- Annuities and Cash Flows with payments that are not contingent
 - Students will be able to perform calculations as it relates to: annuity-immediate, annuity due, perpetuity, payable m-thly or payable continuously, level payment annuity, arithmetic increasing/decreasing annuity, geometric increasing/decreasing annuity, term of an annuity.
- Loans
 - Students will be able to understand and perform calculations as it relates to the following concepts: principal, interest, term of loan, outstanding balance, final payment (drop payment, balloon payment), amortization, sinking fund.
- Bonds
 - Students will be able to understand and perform calculations as it relates to: price, book value, amortization of premium, accumulation of discount, redemption value, par value/face value, yield rate, coupon, coupon rate, term of bond, callable and non-callable bonds.

Marking Scheme:

There will be 2 term tests. The term test a student scores higher on will be worth 30% and the lower graded test will be worth 20%.

The first term test would take place on Wednesday 31st May at 6:00PM to 8:00PM at a location TBA.

The second term test would take place on Wednesday 21st June at 6:00PM to 8:00PM at a location TBA.

The Final Exam is worth 50% and the location and date are TBA.

Missed Term Test:

There will be no make-up test if you miss any of the examinations. If you do miss a term test, you are required by faculty regulation to submit the appropriate documentation (within one week after the missed term test) to the course instructor or the Departmental Office. On this documentation, please print your name, student number, the course number and the date. The medical certificate you provide from your doctor should be signed by an Ontario-registered MD with registration number and phone number. Also, it should specifically state that there was a disabling health problem on the day of the

test. If your documentation is acceptable, the test's weight will be shifted to your final examination. If documentation is not accepted or not provided, your test mark will be 0.

Calculator Policy:

ONLY non-programmable calculators are allowed on the tests and final examination. Since this course helps in preparing you for the Society of Actuaries' FM examination, it is encouraged to use one of the calculators allowed for that examination (example, the Texas Instruments BA II PLUS).

Means of Communication:

Please join the closed Facebook Group, "ACT240 Summer 2017".