

**ACT230 Mathematics of Finance for Non-Actuaries**  
**Course Syllabus**  
**Summer 2019**

**Pre-requisites:**

First-year Calculus.

**Note:** If you do not have the pre-requisites and still wish to take this course, then according the FAS regulations you must submit a waiver form to me for approval. This form can be found at <http://www.utstat.toronto.edu/wordpress/wp-content/uploads/2011/09/request-for-prereq-or-coreq-waiver.pdf>

**General Information:**

- Lecture room: SS (Sidney Smith Hall) 2127
- Tutorial room: RW (Ramsay Wright Laboratories) 140
- Instructor: Shuai (Alex) Yang

- Email: [shuai.yang@mail.utoronto.ca](mailto:shuai.yang@mail.utoronto.ca)

**Note:** Regular inquires should be conducted during the office hours, email communication is only for emergency matters. Please include your name, student number and ACT230 in subject line. Only emails sent from your utoronto email account will be answered.

- TA: Spark Tseung
- Office hours: Tuesday 4 - 5 pm or by appointment.
- Office hour location: SS623B (basement level)

**Course Description:**

Introduction to financial mathematics, interest measurement, present value calculation, annuity valuation, loan amortization, consumer financing arrangements, bond valuation. The course is aimed at a general audience who will **NOT** be continuing in the actuarial science program.

**Course Materials:**

**Required:**

- Prof. Sam Borverman's Coursebook for ACT230
- A Financial Calculator (e.g. Texas Instruments BA II Plus)

### Other useful references:

- *Mathematics of investment and credit* by Prof. Sam Broverman .
- Society of Actuaries (SOA) Exam FM sample questions <sup>1</sup> which can be found at <https://www.soa.org/globalassets/assets/Files/Edu/2017/exam-fm-sample-questions.pdf>

### Course Website:

All of the lecture notes, practise questions, and announcements will be posted on the course website at <https://q.utoronto.ca>

### Tentative Schedule:

- May 7 (7 - 9 pm) - Section 1: Simple and compound interest
- May 9 (7 - 9 pm) - Section 2: Nominal interest
- May 14 (7 - 9 pm) - Section 3: Force of interest
- May 16 (7 - 9 pm) - Section 4: Basic annuities
- May 21
  - (6 - 7 pm) - **Quiz 1 (Section 1 - 4) at RW 140.**
  - (7 - 9 pm) - Section 5: Annuity valuation at different times
- May 23 (7 - 9 pm)
  - Section 6: Annuities with different time and payment frequencies
  - Section 7: Annuities with geometric progressed payments
- May 28 (7 - 9 pm) - **Midterm Test (Section 1 - 6), location TBD**
- May 30 (7 - 9 pm) - Section 8: Annuities with arithmetic progressed payments
- June 4 [***Last day to drop F section code courses***] (7 - 9 pm) - Section 9: Loan
- June 6 (7 - 9 pm) - Section 10: Bond
- June 11
  - (6 - 7 pm) - **Quiz 2 (Section 7 - 10) at RW 140.**
  - (7 - 9 pm) - Section 11: Callable Bond
- June 13 (7 - 9 pm) - Section 12: Rate of return measurement

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<sup>1</sup>Only those related to the materials covered in this course.

## Evaluation:

There will be two in tutorial quizzes, one midterm test and one final exam.

$$8\% \times \text{Quizzes} + 40\% \times \text{Midterm test} + 52\% \times \text{Final}$$

The final exam is cumulative. Both the midterm test and final exam are **multiple choice exams, closed book and closed notes**, financial calculators (e.g. mentioned above in the course material section) or non-programming calculators are allowed. You can bring multiple calculators to the exam if you wish.

If you miss any of the quizzes or midterm test for a valid reason, for example, illness. You must provide the appropriate document in order to shift the corresponding weight to the final exam. For example, you miss the first quiz and the midterm and you provide doctor notes for both, then your final grade will be  $4\% \times \text{Quiz 2} + 96\% \times \text{Final}$ .

## Academic Integrity

You should always keep the academic integrity in mind. The latest version of the student handout 'How not to Plagiarize' is available at <http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize>.

In addition, you are responsible for knowing the content of the University of Toronto's **Code of Behaviour on Academic Matters** at <http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>. If you have any questions about what is or is not permitted in this course, please do not hesitate to contact me. The bottom line: copying is strictly prohibited.