

## Outline

### Instructor:

Meng Du, **Office:** SS6026, **Email:** meng.du(at)utoronto.ca  
**Office Hours:** Mondays and Wednesdays 4 - 5pm (July 7 – August 11), in SS6026.

### Textbook:

S. BROVERMAN STUDY GUIDE FOR THE SOCIETY OF ACTUARIES EXAM MLC  
VOLUME 1 - PART A  
Photocopies available at ALICO's copy centre, 203A College Street.

### Recommended References:

1. Actuarial Mathematics for Life Contingent Risks, 2nd Ed. by David Dickson, Mary Hardy and Howard Waters
2. Models for Quantifying Risk, 5th Ed. by Robin J. Cunningham, Thomas N. Herzog, Richard L. London

### Prerequisites:

**ACT240H1** Mathematics of Investment & Credit  
**MAT137Y1** Calculus (minimum grade 65%) OR **MAT157Y1** Analysis I (minimum grade 50%)  
**STA257H1** Probability and Statistics I

### Important:

- If you are missing one or more of these specified prerequisites, you should talk to me and provide reasons why you should be allowed to stay in the class.
- Even If you think you have the equivalent course credits, you still should talk to me and otherwise you may be removed from the class.
- For those who have taken ACTB40H at UTSC, be aware that although ACTB40H at UTSC is similar to ACT240H1, the credit is not acceptable for the actuarial science program at St George.

### Lectures and Tutorials:

**Lectures:** Mondays and Wednesdays 7:10-9:00pm, in SS2127.  
The first lecture is July 2. The last lecture is August 11.

**Tutorials:** Mondays and Wednesday 6:10-7:00pm, in SS2127.  
The first tutorial is July 7. The last tutorial is August 11.

There is no lecture or tutorial August 4 (Civic Holiday).

### Evaluation:

25% 50-min term test 1 (short-answer questions), July 16 held in tutorial time  
25% 50-min term test 2 (short-answer questions), July 30 held in tutorial time  
50% 2-hour final exam (combination of multiple-choice and short-answer questions), TBA

### Policies on Remarking Requests

All remarking requests should be addressed to the instructor directly within one week of receiving the marked work with a written note explaining your complaints.

## Policies on Missed Term Tests or Final Exam

*Read the following carefully. It is the student's responsibility to meet all the regulations.*

- If only one term test is missed for any reason, there is no makeup test and the evaluation will be adjusted as:  
33% the other term test  
67% final exam
- If both term tests are missed and if you have a **valid reason**, you must provide an **official document** to justify your absence in order to write a **50-min** makeup test which covers the combined material in **both** term tests; the evaluation will be adjusted as:  
33% makeup term test  
67% final exam
- If both term tests are missed and if you **do not** have a **valid reason** or **fail** to provide an **official document** to justify your absence, you will **not** be allowed to write a makeup test and the evaluation will be adjusted as:  
0% term tests  
67% final exam
- If the final exam is missed, you will have to provide an **official document** to justify your absence in order to write a makeup exam. The time and location of the makeup exam will be arranged by the Faculty of Arts and Science.
- The Faculty of Arts and Science require the student who misses a term test or an exam to inform the course instructor **no later than one week of the missed term test or exam**. (Under exceptional circumstances, extension of absence will be considered at request.)
- **The acceptable types of official documents** to support a legitimate absence include (but not limited to): U of T Verification of Illness or Injury Form, Student Health or Disability Related Certificate, A College Registrars Letter, Accessibility Services Letter, and Police's note.

*For general information about the actuarial science program at St George or SOA/CAS exams, please consult:*

Prof Samuel Broverman, Associate Chair  
Office: Sidney Smith Hall, Room 6016  
Phone: 416-978-4453  
Email: sam(at)utstat.toronto.edu

## Syllabus

### Lecture 1 – July 2:

- Survival and mortality models (Sec 2)
- Force of mortality (Sec 3)

### Lecture 2 – July 7:

- Life table (Sec 4)
- Means and variances of lifetime random variables (Sec 5)

(July 8 – Last day to add courses)

### Lecture 3 – July 9:

- Parametric survival models (Sec 6)
- Fractional age assumptions (Sec 7)

### Lecture 4 – July 14:

- Select and ultimate mortality (Sec 8)
- Review 1 (Sec 1 – 8)

**Term Test 1 – July 16** held in tutorial time (location: TBA)

- Cover all material discussed in Lectures 1 – 3

### Lecture 5 – July 16:

- Term and whole life insurances (Sec 9 and 10)

### Lecture 6 – July 21:

- Pure endowment and other insurances (Sec 11)
- Insurance payable at the moment of death (Sec 12)

### Lecture 7 – July 23:

- Additional insurance relationships (Sec 13)
- Discrete whole life annuity-due (Sec 14)

### Lecture 8 – July 28:

- Discrete life annuities (Sec 15)
- Review 2 (Sec 9 – 15)

(July 29 – Last day to drop courses)

**Term Test 2 – July 30** held in tutorial time (location: TBA)

- Cover all material discussed in Lectures 4 – 7

### Lecture 9 – July 30:

- Continuous life annuities (Sec 16)
- Additional annuity relationships (Sec 17)

### Lecture 10 – August 6:

- Loss at issue and premium calculation (Sec 18)
- Equivalence principle premiums Sec 19)

**Lecture 11 – August 11:**

- Policy expenses Sec 20)
- Review 3 (Sec 16 – 20)
- Course evaluation

**Final Exam – Date TBA**

- Covers all material discussed in the lectures.

(August 19 – Last day to appeal for term work)

(August 26 – Last day to appeal for final exam)