University of Toronto
Department of Statistical Sciences

ACT247 – Introductory Life Contingencies

(Summer 2024)

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Lectures: Monday & Wednesday, 10am–12pm , online at https://utoronto.zoom.us/j/83156324984. **We are mostly having live lectures, but some will be pre-recorded and posted by the time of the usual lecture.** All the possible updates regarding this or the course, in general, will be made in class or on Quercus. The first class is on July 3th, and the last one is on August 13th.

Instructor Office Hour: Immediately after the lecture in the same Zoom link. I will stay in the room after the lecture until there are no more questions, or at most up to 1 hour after. I will answer the questions in public, but if you have a private question, please send me an email and we will schedule a virtual appointment. Office Hours will be canceled if we don't meet for a live class.

Tutorials: Thursdays, 7 – 9 pm also on Zoom at https://utoronto.zoom.us/j/85677637548. **We are mostly having live tutorials, but some will be pre-recorded and posted by the time of the usual tutorial.** Please note:

(1) The first tutorial is on July 4th, and the last tutorial is on August 8th.

(2) The TA may go over some practice questions, and they may leave time for you to ask your questions. So, you can view a part of the tutorials as a semi-group office hour with your TA. Attendance to tutorials is not mandatory, except for those in which where there is an assessment.

Piazza: TAs will be answering questions in Piazza each week. No questions will be answered on weekends, so try to post your questions on weekdays only.

Course Description:

Welcome to ACT247, your first course in the life contingencies series. In this course, we will study the future lifetime random variable, survival models for actuarial science, basic life insurance and annuity policies and the international actuarial notations.

Note: This course is for students working to enter actuarial science major or specialist program. In order to enroll in any 300- or 400-level ACT course, a minimum grade of 63% must be obtained in each of ACT240, ACT245 and ACT247.

Teaching Style:
I will be following the coursebook very closely. I will present only the key points of the topics, in either with slides or live on the whiteboard, and do some example problems in the lecture. I will try to post the materials before the lectures, but this may not always be the case. I will also post my annotated version of the slides/notes after the lecture. I will be assuming that you are also doing your part by reading the coursebook, solving all questions in the problem sets, and attending tutorials.

The time allocated in the lecture is only enough to grasp the content of the course, and a lot of autonomous work must be done! This class also prepares you for the Fundamental of Actuarial Mathematics (FAM) exam of the Society of Actuaries (SOA), so most of the questions and examples will resemble the structure of such exams.

Textbook:

The main textbook is Broverman coursebook for ACT247+ACT348. We have made it available for purchase through the UofT bookstore website.

Another useful book, yet not mandatory, is *Actuarial Mathematics for Life Contingent Risks*, by Dickson, C.M.D., Hardy, M.R., Waters, H.R. Cambridge University Press

Calculator:

You need one of the following SOA-approved calculators: battery or solar–powered Texas Instruments BA–35 model calculator, the BA II Plus, the BA II Plus Professional, the TI–30Xa or TI–30X II (IIS solar or IIB battery), or TI-30X MultiView (XS Solar or XB Battery).

Course Evaluation:

All assessments are online through the Quercus Quizzes function. You will require a reliable internet connection to complete the assessment.

Assesment	Weight	Details
Weekly Quizzes	24%	6 in total on Fridays. More instructions are below.
Exam 1	22%	July 25. During the tutorial. Covers the first 5 lectures.
Exam 2	22%	August 13. During the lecture. Emphasis on the next 5 lectures
Final exam	32%	TBA. Covers everything.

Each quiz will consist of 3-4 MC questions related to the topics covered in the lectures in that same week. The questions will be very similar to examples in the lecture and exercises in the study manual. These are formative assessments to make sure you are constantly working on the course.

The weekly quiz will become available on Quercus no later than 10am on Fridays, and I will leave the quiz window open until midnight. Once you have started the quiz, you'll have 35 minutes to complete it (each question should take less than 7 minutes, but more time is provided in case you encounter a minor tech failure).

The weights of the exams may change depending on your performance. In general, I would allocate the 32% weight to your best exam out of the three, and the 22% to the other two.

More information about the structure and content of the exams will be provided in class or Quercus later in the term, at least one week before each examination.

Re-Marking:

Any requests to have your work remarked must contain a detailed written justification. Remarking requests should be emailed to the instructor within one week of receiving your mark, otherwise, they won't be processed. Note that adjustments in marks could equally result in a lowering or raising of the mark. When appealing a re-evaluation decision, the student accepts this condition.

Tentative Schedule (subject to modification):

Week	Date	Course Content
1	July 3	- Introduction and Preliminaries. - **Readings: Section 1 and Problem Set 1**
2	July 8	- Models for Survival and Mortality **- Readings: Sections 2 and 3**
2	July 10	- Moments of Future Lifetime; Parametric Survival Models. - **Readings: Sections 5 and 6**
3	July 15	- Life Table; Fractional Age Assumptions. - **Readings: Sections 4 and 7**
3	July 17	- Select and Ultimate Mortality; Examples and other considerations - **Readings: Sections 8 and Problem Set 2**
4	July 22	- Term Insurance; Whole Life Insurance. - **Readings: Sections 9 and 10**
4	July 24	- More Life Insurance Policies. - **Readings: Sections 11 and 12** **- Exam 1 on July 25** (22%): Covers everything up to class on July 17.
5	July 29	- Additional Insurance Relationships and Examples. - **Readings: Sections 13 and Problem Set 3**
5	July 31	-Discrete Life Annuities. - **Readings: Sections 14 and 15**
6	Aug 5	Civic Holiday: No class
6	Aug 7	- Continuous Life Annuities and Additional Relationships. - **Readings: Sections 16 and 17**
7+	Aug 12	- Review and further topics. - **Readings: Problem Set 4 and Section 18**
7+	Aug 13	- **Exam 2** (22%): Covers everything up to class on August 7.
7+	Aug 15-23	- **Final Exam** (32%): Time TBA. Covers everything.

Missed Quizzes and Tests:

The following rules will be strictly enforced.

1. Quizzes: There are no make-up quizzes, and no marks will be given to missed quizzes. If you encounter a technical issue during your quiz, reach out to the TA immediately.
2. Exams:
   - If you miss one exam due to valid reasons, either Exam 1 OR Exam 2, you must notify the instructor **via email by the end of the day immediately after the missed examination**. Also, you must use the Absence Declaration area in ACORN to formally declare the absence to the University. The exam weight will be shifted proportionally to the final assessment and the quizzes associated with the topics of the missed exam.
   - YOU ARE NOT ALLOWED TO MISS MORE THAN ONE TEST. Students who miss both term tests will lose automatically 22% of the final mark and the remaining 22% will be shifted proportionally to the final assessment and the quizzes.

Accessibility Services:

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach the instructor and/or Accessibility Services at 416-978 8060; studentlife.utoronto.ca/as.

Academic Integrity:

Academic integrity is fundamental to learning and scholarship at the University of Toronto. All work must be done by yourself, without help from others. Receiving help from anyone on an assessment, whether they are another student in the course or someone external to the course, is a serious academic offence. Providing help to another student in the course on an assessment is an equally serious academic offence. Posting or distributing questions from assessments is not permitted at any time.

Please further familiarize yourself with the University of Toronto's Code of Behavior on Academic Matters available at http://academicintegrity.utoronto.ca, or you may also look at https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity.

Lead a Recognized Study Group (RSG) for this course
Apply now to be an RSG Leader for this course. RSGs are peer-led study groups of up to 8 students enrolled in the same A&S course.

Volunteering to be an RSG Leader is a great way to:

- Make friends in your courses
- Gain new leadership and group-facilitation skills
- Increase your understanding of course material
- Prepare for test and exams
- Boost your resume
- Earn a Co-Curricular Record (CCR) credit

This Fall, over 1,000 students volunteered to be an RSG Leader. Volunteer to be an RSG Leader this term with the support and training of Upper-year Arts & Science students! No experience is necessary.
 Sign up to be an RSG Leader now.

Looking to join an RSG? RSGs for this course will be available to join starting May 16, 2021 on the Sidney Smith Commons Online.

Find more information, visit: https://uoft.me/recognizedstudygroups or @sidneysmithcommons
Looking for more ways to study with other students? Join Meet to Complete, daily study-with-me sessions just for Arts & Science students!

Canadian Institute of Actuaries (CIA)'s University Accreditation Program (UAP)

ACT247 is an accredited course under the UAP program. The minimum grade needed to apply for an exemption is 70. For detailed information on UAP, please visit the following webpages:

- University Accreditation Program description (http://www.cia-ica.ca/membership/uap)
- List of accredited courses offered by University of Toronto: http://www.cia-ica.ca/membership/uap/accredited/toronto
- How to apply for CIA exemptions: http://www.cia-ica.ca/membership/uap/information-for-students

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:

 Casualty Actuarial Society (CAS): ACAS, FCAS

 UK Institute and Faculty of Actuaries (IFoA): FIA, AIA

 Institute of Actuaries of Australia (IAA): AIAA, FIAA

 Actuarial Society of South Africa (ASSA): AMASSA, FASSA

 American Academy of Actuaries (AAA): MAAA

 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.