

The University of Western Ontario
Department of Statistical and Actuarial Sciences
AS 3429A/9429A
LONG TERM ACTUARIAL MATH II
Course Outline – Fall 2019

1. Course Information

Course Description: Single life annuity and life insurance loss random variables and their distributions, with applications to the analysis of benefit premiums and reserves; survival model estimates; mortality Improvement and longevity models.

Prerequisites: A minimum mark of 60% in each of Actuarial Science 2427A/B and Statistical Sciences 2858A/B

Pre/Corequisite(s): Statistical Sciences 3657A/B

Warning: Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Lecture Hours and Location: Mon, Wed, and Fri. 10:30am – 11:30am SEB 2100

2. Instructor Information

Instructor: **Shu Li**

Office: WSC 229

Email: shu.li@uwo.ca

Phone: 519-661-2111 ext 85419

Instructor office hours: Mondays 1:30pm – 3:30pm, Thursdays 2:30pm – 3:30pm

Teaching Assistant: TBD

TA office hours: TBD

3. Course Materials

One Textbook + Two Study Notes:

1. *Actuarial Mathematics for Life Contingent Risks (AMLCR)* by Dickson, C.M.D., Hardy, M.R., and Waters, H.R., 2013, **2nd Edition**.
 - Chapters 6 and 7 (excluding 6.10, 7.3.5, 7.6, 7.7, 7.10)
2. [SOA LTAM-21-18 Supplementary Note on Long Term Actuarial Mathematics \(Hardy\)](#) by Hardy, M.R.
 - Chapters 4 and 5 (excluding 5.3), including Section 3.11 of *AMLCR*

3. [SOA LTAM-22-19 Estimation based on Empirical Data \(KPW\)](#) from *Loss Models, From Data to Decisions*, by Klugman, S.A., Panjer H.H., and Willmot, G.E., 2018, **5th Edition**.
 - Background reading from Chapters 10 and 11
 - Chapter 14 is required (excluding 14.4, 14.6).

A solutions manual for the *AMLCR* text has been published and can be purchased online from Amazon.

The course material supports part of the Learning Objectives/Outcomes from **SOA Long-Term Actuarial Mathematics Exam (LTAM)** Syllabus.

4. Course Website Information

Students should check OWL (<http://owl.uwo.ca>) on a regular basis for lecture notes, announcements and updates. This is the primary method by which information will be disseminated to all students in the class. Students are responsible for checking OWL on a regular basis.

5. Methods of Evaluation

The overall grade will be calculated as listed below:

5%	Assignment
15%	Quizzes (5% each)
30%	Tests (15% each)
50%	Final Exam

- **Assignment:** There will be **one assignment** posted on OWL with instructions and due date. Late assignment will not be accepted.
- **Quizzes:** There will be **three 30-minute quizzes in class** on the following **Wednesdays: September 25, October 23, and November 27**. Each quiz will consist of a few short answer questions on recently covered lecture topics.
- **Tests:** There will be **two 50-minute tests in class** held. Test 1 will be on **Wednesday October 9**. Test 2 will be on **Wednesday November 13**.
- **Final Exam:** A **3-hour** final exam will be scheduled by the Registrar's Office in the final examination period.

Calculators: Any non-programmable calculator may be used in this course.

Practice questions: Suggested practice questions will be posted on OWL. Assistance with solving them may be obtained during the instructor's and TA's office hours.

6. Canadian Institute of Actuaries Actuarial Exam Accreditation

This course is accredited under the Canadian Institute of Actuaries (CIA) [University Accreditation Program](#) (UAP). Achievement of the minimum required grades in accredited courses may provide

credit for preliminary exams. Please note that a combination of courses may be required to achieve exam credit. Details of required courses and grades at Western University are [available here](#).

In addition to the university's internal policies on conduct, including academic misconduct, candidates pursuing credits for writing professional examinations shall also be subject to the [Code of Conduct and Ethics for Candidates in the CIA Education System](#) and the associated [Policy on Conduct and Ethics for Candidates in the CIA Education System](#). For more information, please visit [Obtaining UAP Credits](#) and the [CIA FAQ](#).

7. Accommodation and Accessibility

If you are unable to meet a course requirement due to illness or other serious circumstances, you must seek approval for the absence as soon as possible. Approval can be granted either through a self-reporting of absence or via the Dean's Office/Academic Counselling unit of your Home Faculty. If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in NCB 280, and can be contacted at scibmsac@uwo.ca.

For further information, please consult the university's policy on academic consideration for student absences:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf.

If you miss the Final Exam, please contact your faculty's Academic Counselling Office as soon as you are able to do so. They will assess your eligibility to write the Special Exam (the name given by the university to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (see http://www.registrar.uwo.ca/examinations/exam_schedule.html).

Missed Midterm or Test: The policy of the department of Statistical and Actuarial Sciences is that there will be **no make-up exams** for a missed midterm. For those that do legitimately miss a midterm and provide the required supporting documentation, the standard practice will be that the weight of the midterm will be reassigned to the final exam. If your reason is not deemed valid, then you will receive a mark of 0.

8. Email Communication

You are welcome to communicate with your instructor by email, but email communication should only be used to provide them with information or ask a question that requires a *brief* response. For more lengthy discussions and for discussions on lectures/course material, please see your instructor during their scheduled office hours or by appointment. Students must use their Western (@uwo.ca) email addresses when contacting their instructors. Only emails sent from your UWO account will be read (as emails sent from other addresses often get spammed).

9. Academic Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

Cell phones and all other electronic devices are prohibited during tests, quizzes and exams.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

10. Support Services

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Student Accessibility Services (SAS) at 661-2147 if you have any questions regarding accommodations.

The policy on Accommodation for Students with Disabilities can be found here: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_disabilities.pdf

The policy on Accommodation for Religious Holidays can be found here: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mental_health) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, <http://westernusc.ca/services>.

11. Classroom Environment

The Department has adopted a "Mutual Expectations" policy governing the classroom environment and all work submitted by students. The full text of the policy can be found at: <http://www.uwo.ca/stats/undergraduate/mutual-expectations.html>. In summary, the policy was developed under the premise that all interactions between students and faculty should be governed by the principles of courtesy, respect and honesty.

Computers and other technical devices are to be used only for note taking purposes during class and cell phones should be turned off/on mute.