

AS 3429/9429 Long Term Actuarial Math II

Course Outline

1. Course Information

Course Information

Course name: AS 3429A/9429A - Long Term Actuarial Math II
Academic Term: Fall 2023
Lecture hours: MWF 10:30am - 11:30am
Lecture location: WSC 240

List of Prerequisites

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

For the requisites for this course or written special permission from your Dean or
(Department/Program Counsellors and Science Academic Counselling) to enroll in it, you
in this course and it will be deleted from your record. This decision may not be
receive no adjustment to your fees in the event that you are dropped from a course
the necessary prerequisites.

2. Instructor Information

| Instructors | Email | Office | Phone | Office Hours |
|---|---------------|---------|--------------------------|--------------|
| Dr. Shu Li (Instructor & Course Coordinator) | shu.li@uwo.ca | WSC 229 | 5196612111 ext. 85419 | TBD |
| TBD (Teaching assistant) | | | | |
| TBD (Teaching assistant) | | | | |

3. Course Syllabus, Schedule, Delivery Mode

Course Description: Single life annuity and life insurance loss random variables and their distributions, with applications to the analysis of benefit premiums and policy values (reserves); introduction to multiple state models; survival model and their estimation.

Learning Outcomes: The course material supports part of the Learning Objectives/Outcomes from SOA Exam FAM-L Syllabus.

| Type | Mode | Dates | Time | Frequency |
|---------|-----------|-------|-------------------|-----------|
| Lecture | In-person | MWF | 10:30am ó 11:30am | weekly |

Note that the office hours are held in-person. Additional office hours will be provided before the tests and final exam, and will be announced on OWL.

Key Sessional Dates:

Classes begin: September 7, 2023;
Fall Reading Week: October 30 ó November 5, 2023;
Classes end: December 8, 2023;
Exam period: December 10 ó 22, 2023;

Other Important Dates:

September 18 (Monday): Canada Life Day.
September 29 (Friday): National Day for Truth and Reconciliation (observed as a non-instructional day at Western).

Contingency plan

Although the intent is for this course to be delivered in person, should any university-declared emergency require some or all of the course to be delivered online, either synchronously or asynchronously, the course will adapt accordingly. The grading scheme will **not** change. Any assessments affected will be conducted online as determined by the course instructor.

4. Course Materials

Textbook: Actuarial Mathematics for Life Contingent Risks (AMLCR) by Dickson, C.M.D., Hardy, M.R., and Waters, H.R., 2020, **Third Edition**. Cambridge University Press.

Premium calculation: Chapter 6

Policy values: Chapter 7 (excluding Sections 7.2.5, 7.5, 7.6, 7.9)

Multiple state models: Chapter 8 Sections 8.1 ó 8.5

Estimating survival models: Chapter 18 Sections 18.1 ó 18.6

A solutions manual for the AMLCR text is also available.

Students may find the textbook and its solution manual from their Personal Textbook list, or through the following direct link to the resources from Western Bookstore.

https://bookstore.uwo.ca/textbook-search?campus=UWO&term=W2023A&courses%5B0%5D=001_UW/ASC3429A

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

All course material will be posted to OWL: <http://owl.uwo.ca>.

If students need assistance with the course OWL site, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

| | |
|-----------------------|------------|
| Assignment (1) | 5% |
| Quiz (1) | 5% |
| Tests (2) | 40% |
| Final Exam | 50% |

Tests: There will be two 50-minute tests on **Fridays October 13 and November 17, held in-class.**

Final Exam: A 3-j qwt hpcnlgzco 'y kn'dg'uej gf wrgf 'd{ 'vj g'Tgi kwtctau'Qhleg'lp'vj g'hpcnlgzco kpcvkqp" period.

Note: All the above evaluations are **closed-book**.

Assignment: There will be one assignment for this course. Students could work individually or in a group (of maximum two members) to complete the Assignment using Excel (or other mathematical software).

It will be posted on OWL with instructions and due date. _____

Quiz: There will be one take-home quiz posted on OWL, on **Wednesday September 27**. Students will grade it on your own and return the scorecard to **the instructor** by **Wednesday October 4**.

Specific conditions that are required to pass the course:

a minimum _____ of the evaluations must be completed before the final exam.

Calculators: Any non-programmable calculator may be used in this course. Students are recommended to use SOA approved calculators.

Practice questions: Suggested practice questions will be posted on OWL. Assistance with solving them o c{ "dg"qdvclpgf 'f wtkpi 'vj g'lpwtvevtu'cpf "VCu'qhleg"j qwtu0

There will be **no make-up exams** for a missed quiz/test. Rrgcug"ugg"vj g'ugevkqp"qh'öStudent Absencesö" for more information.

6. University Accreditation Program – Canadian Institute of Actuaries (CIA)

This course is part of the University Accreditation Program meeting certain requirements by the Canadian Institute of Actuaries. Please consult the CIA website (<https://www.cia-ica.ca/membership/university-accreditation-program-home>) for full details on CIA accreditation.

7. Student Absences

If you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedures below.

Assessments worth less than 5% of the overall course grade: Does not apply to this course.

Assessments worth 5% or more of the overall course grade:

For work totalling 5% or more of the final course grade, you must provide valid medical or supporting documentation to the Academic Counselling Office of your Faculty of Registration as soon as possible. For further information, please consult the [Upkxgtukv{øi'o gf kcrilmpguu'r qrlø{"cv](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf)

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

The Student Medical Certificate is available at

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

Missed Quiz or Test: The policy of the department of Statistical and Actuarial Sciences is that there will be **no make-up exams** for a missed quiz/test. 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.

Absences from Final Examinations

10. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: <https://www.uwo.ca/sci/counselling/>.

Students who are in emotional/mental distress should refer to Mental Health@Western