

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

Unless you have either the requisites for this course or written special permission from your Dean's Designate (Department/Program Counsellors and Science Academic Counselling) 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.

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)				
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Students must use their Western (@uwo.ca) email addresses when contacting their instructors, and indicate the course number (AS 3429) in the subject line.

We strive to answer all emails within **2 business days**.

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 – 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 – November 5, 2023;
- Classes end: December 8, 2023;
- Exam period: December 10 – 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 – 8.5
- Estimating survival models: Chapter 18 Sections 18.1 – 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-hour final exam will be scheduled by the Registrar's Office in the final examination 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. **Late assignment will not be accepted.**

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 30% 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 may be obtained during the instructor's and TA's office hours.

There will be **no make-up exams** for a missed quiz/test. Please see the section of "Student Absences" 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 University's medical illness policy at

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

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (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" (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under [Special Examinations](#)).

Note: missed work can *only* be excused through one of the mechanisms above. Being asked not to attend an in-person course requirement due to potential COVID-19 symptoms is **not** sufficient on its own.

8. Accommodation and Accessibility

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

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

9. Academic Policies

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

In accordance with policy,

https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf,

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 their 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.

In the case of in-person class pivoting to 100% online learning, tests and examinations in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at:

<https://remoteproctoring.uwo.ca>.

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 (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

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 Accessible Education at

http://academicsupport.uwo.ca/accessible_education/index.html

if you have any questions regarding accommodations.

Learning-skills counsellors at the Student Development Centre (<https://learning.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.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

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