

# AS3429/9429 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 2025

**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 Advisors) 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

Role	Email	Office	Phone	Office Hours
Dr. Xiaoming Liu (Instructor & Course Coordinator)	<a href="mailto:xliu293@uwo.ca">xliu293@uwo.ca</a>	WSC 215	5196612111 (ext 88233)	Tuesday 2:30-3:30pm
Shiva Mehdipour Ghobadlou (Course TA)	<a href="mailto:smehdipo@uwo.ca">smehdipo@uwo.ca</a>	WSC250	N/A	Friday* 2:30- 4:30pm

\* TA office hours will take place only on Fridays when a quiz or test is coming up. Stay tuned for notifications.

Students must use their Western ([@uwo.ca](mailto:@uwo.ca)) email addresses when contacting their instructors, and indicate the course number (AS3249) 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); the premium and policy values calculations under multiple state models, and their applications in long-term health and disability insurance.

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

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 Brightspace.

#### Key Sessional Dates:

Classes begin: September 4, 2025

**Midterm test: Wednesday, October 22, 2025**

Fall Reading Week: November 3 – 9, 2025

Classes end: December 9, 2025;

Exam period: December 11 – 22, 2025;

#### Other Important Dates: (no class)

- September 15 (Monday): Canada Life Day.
- The application deadline for **Actuarial Science-related scholarships/internships** will be announced soon!
- September 30 (Tuesday): National Day for Truth and Reconciliation (observed as a non-instructional day at Western).
- Oct. 13: Thanksgiving (No classes)

### 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

A solutions manual for the AMLCR text is also available. The prices for the book and its solutions manual are \$127.18 and \$62.95, respectively.

Students are responsible for checking the course OWL site (<https://westernu.brightspace.com/>) regularly for announcements and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course OWL site, they can seek support on the [OWL Brightspace 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

### Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below:

AS3429		AS9429	
Assignments (1)	3%	Assignments (1)	3%
Quizzes (4)	12%	Quizzes (4)	12%
Midterm test (1)	30%	Midterm test (1)	30%
Final Exam	55%	Final Exam	<b>50%</b>
		<b>Projects (1)*</b>	<b>5%</b>

\* **AS 9429: Graduate students have an additional project weighted 5%. Accordingly, the weight of Final exam is modified to 50%.**

**Tests:** A 50-minute **in-class** test will be held on **Wednesday, October 22.**

**Final Exam:** A 3-hour final exam will be scheduled by the Registrar's Office in the final examination period.

Note: Both of midterm test and final exam are **closed-book**.

Note: Students have one week to request a re-evaluation after their graded work has been returned.

**Assignment:** There will be one assignment for this course. Students may work individually or in a group (of maximum two members) to complete the Assignment using Excel (or other mathematical software). The assignment will be posted on OWL with instructions and due date.

**Take-home Quiz:** Four take-home quizzes will be posted on OWL, closely aligning with the course progress. These can be completed at any time within a specified period.

**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.

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

### Use of Generative AI Tools

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, quizzes, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a **scholastic offence**.

## University Accreditation Program – Canadian Institute of Actuaries (CIA)

### Honours Specialization in Actuarial Science

If you graduate from Western with an HSP in Actuarial Science, this course will be one of the courses that you will take in your program that will allow you to be exempt from the preliminary exams of the Society of Actuaries (SOA). If your plan is to become a fully qualified actuary working in Canada, then all you would need to do is graduate from your HSP in actuarial science and you would then be eligible for the CIA Capstone Exam. Taking and passing this exam, along with completing two online modules and a practice education course, would make you eligible to become an ACIA (Associate of the Canadian Institute of Actuaries).

### Major in Actuarial Science

If you graduate from Western with a major in Actuarial Science, the CIA accreditation program will not apply to you. If your plan is to become a fully qualified actuary, then you will need to continue to write and pass the preliminary exams of the SOA.

Please see the following link for full details:

<https://www.cia-ica.ca/starting-your-journey/actuarial-education-in-canada/>

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**.

<https://www.cia-ica.ca/publications/223159e/>

## General information about missed coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs*, posted on the Academic Calendar:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/academic\\_consideration\\_Sep24.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf),

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage:

[https://registrar.uwo.ca/academics/academic\\_considerations/](https://registrar.uwo.ca/academics/academic_considerations/)

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- **Midterm test and final examination scheduled during official examination periods (Defined by policy)**

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the **Coursework with Assessment Flexibility** section below, the request cannot be recalled and reapplied. This privilege is forfeited.

## Evaluation Scheme for Missed Assessments

For a student to be eligible for academic consideration for a missed assessment, appropriate documentation must be provided to an Academic Counsellor in your Dean's Office.

### 1. Missed Coursework (Quizzes, Assignments, Project)

Students who miss a take-home quiz, assignment, or project have two options for academic consideration:

- Submit an Academic Consideration request **without supporting documentation**, provided it has not already been used in this course during the term. (**Note: Only undergraduate students can avail themselves of such requests.**)
- Provide official documentation to Academic Counselling for approval.

**Regardless of the method of approval, students are required to submit the assessment within a one-week extension from the original due date. Failure to submit the work within this extension will result in a grade of 0 for the assessment.**

### 2. Missed Midterm Test

If a student receives academic consideration for a legitimately missed Midterm Test, the weight of the Midterm Test will be reassigned to the Final Exam. If academic consideration is not granted, the student will receive a grade of 0.

### 3. Missed Final Exam

If a student receives academic consideration for a missed Final Exam, they will be permitted to write the Special Examination (the University's term for a makeup final exam).

- Students are responsible for consulting the Academic Calendar for official regulations regarding Special Examinations, particularly in cases of missing multiple final exams within one examination period.

## 6. Additional Statements

### 6.1 Religious Accommodation

When conflicts arise with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible, but not later than two weeks prior to the writing of the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays - <https://www.edi.uwo.ca>

### 6.2 Academic 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](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf).

### 6.3 General Academic Policies

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

**Use of @uwo.ca email:** In accordance with policy, [https://www.uwo.ca/univsec/pdf/policies\\_procedures/section1/mapp113.pdf](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 email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

**Requests for Relief** (formally known as "appeals")

Policy on Request for Relief from Academic Decision:

[https://uwo.ca/univsec//pdf/academic\\_policies/appeals/requests\\_for\\_relief\\_from\\_academic\\_decisions.pdf](https://uwo.ca/univsec//pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf)

Procedures on Request for Relief from Academic Decision (Undergraduate):

[https://uwo.ca/univsec//pdf/academic\\_policies/appeals/undergrad\\_requests\\_for\\_relief\\_procedure.pdf](https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf)

[If cross-listed as a grad course] Procedures on Request for Relief from Academic Decision (Graduate):

[https://uwo.ca/univsec//pdf/academic\\_policies/appeals/graduate\\_requests\\_for\\_relief\\_procedure.pdf](https://uwo.ca/univsec//pdf/academic_policies/appeals/graduate_requests_for_relief_procedure.pdf)

## 6.4 Scholastic Offences

Policy on Scholastic Offences:

[https://uwo.ca/univsec//pdf/academic\\_policies/appeals/scholastic\\_offences.pdf](https://uwo.ca/univsec//pdf/academic_policies/appeals/scholastic_offences.pdf)

Procedures on Scholastic Offences (Undergraduate):

[https://uwo.ca/univsec//pdf/academic\\_policies/appeals/undergrad\\_scholastic\\_offence\\_procedure.pdf](https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf)

[If cross-listed as a grad course] Procedures on Scholastic Offences (Graduate):

[https://uwo.ca/univsec//pdf/academic\\_policies/appeals/graduate\\_scholastic\\_offence\\_procedure.pdf](https://uwo.ca/univsec//pdf/academic_policies/appeals/graduate_scholastic_offence_procedure.pdf)

### Use of Electronic Devices During Assessments

In courses offered by the Faculty of Science, the possession of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to: mobile phones, smart watches, smart glasses, and wireless earbuds or headphones.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at your desk, on your person, or within reach during an assessment will be treated as a *scholastic offence*, even if the device is not in use.

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is your responsibility to review and comply with these expectations.

### Use of Generative AI Tools

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, quizzes, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a **scholastic offence**.

If the use of generative AI is permitted for a particular assessment, the conditions of use will be specified by the instructor in advance. If no such permission is granted, students must assume that use is prohibited. It is your responsibility to seek clarification before using any AI tools in academic work.

## 6.5 Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, requests for relief, 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 (GBSV) and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced GBSV (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](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](mailto: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. If you have any questions regarding accommodations, you may also wish to contact Accessible Education at

[http://academicsupport.uwo.ca/accessible\\_education/index.html](http://academicsupport.uwo.ca/accessible_education/index.html)

Learning-skills counsellors at Learning Development and Success (<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.

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