

**AS 3431B / 9007B COURSE OUTLINE**  
The University of Western Ontario  
Winter 2021

### 1. General Course Information

**Course Name:** Long-Term Actuarial Mathematics III

**Class Schedule:** **Mondays, Wednesdays and Fridays** from 8:30 to 9:20am (first class on January 11<sup>th</sup>, 2021 via Zoom meeting---the link for the course will be available in Owl).

### Prerequisite Requirements

A minimum mark of 60% in Actuarial Science 3429A/B and in Statistical Sciences 3657A/B. Restricted to students enrolled in any Actuarial Science module.

**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.

### 2. Instructor Information

<b>Instructor</b>	Xiaoming Liu
<b>Office</b>	WSC 215
<b>Email</b>	xliu@stats.uwo.ca
<b>Phone</b>	Ext. 88233
<b>Office hours</b>	Tuesdays 2:30 – 3:30 pm and Thursdays 10:30-11:30am

### 3. Course Description/Syllabus

#### Calendar Description

Analysis of probability distributions and present values associated with multiple life models, multiple decrement models and more general multi-state models and applications to other long-term coverages or benefits.

This course is accredited under the Canadian Institute of Actuaries (CIA) University Accreditation Program (UAP) for the 2020-2021 academic year. Achievement of the established exemption grade in this course may qualify a student from exemptions from writing certain preliminary exams: a combination of this course, Actuarial Science 3429A (each with a minimum of 80%) and Actuarial Science 2427B (minimum grade of 75%) is required to achieve an exemption for preliminary exam LTAM. A mapping between the course coverage and SOA syllabus can be found in an attached document.

#### 4. Course Materials

*Actuarial Mathematics for Life Contingent Risks* by Dickson, C.M.D., Hardy, M.R., and Waters, H.R., (2nd Edition), 2013, Cambridge: Cambridge University Press (relevant chapters: 8, 9, 10, 12)

*LTAM Supplementary note* (Hardy) (relevant chapters: 1, 2, 3, 6)

Teaching order:

Roughly before reading week: AMLCR 8-8.7, 8.13, and **12**, mixed with selected topics from LTAM note;

Roughly after reading week: LCR 8.8-8.12, 9, 10

Students should check OWL (<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. Students are responsible for checking OWL on a regular basis.

#### 5. Course Delivery Platform

I will use OWL to post lecture notes, announcements and student's grades.

I will use Zoom to conduct **synchronous online lectures**, and the Zoom link for each class has been set up in OWL. The lecture recordings will be provided at request.

I will use **OneNote's Class Notebook** to give lecture's demonstrations. You will be notified when the course OneNote Notebook becomes accessible to you.

In order to effectively participate online classes and office hours through Zoom, students need to have a stable internet connection and computer with working microphone and/or webcam. A digital pen that allows you to write on your computer screen will be very convenient thus desirable to have.

#### 6. Methods of Evaluation

There will be **two quizzes (Feb. 5 and March 26) and three projects (Jan 27, Feb 24, and March 17)** to help students to maintain their study progress over the term, a strategy adopted for online teaching environment. Each quiz contains a combination of some automated-marked questions and a short written-answer question.

There is **one in-class midterm test scheduled on March 3rd, 2021 (Wednesday)** (The date and time for the midterm test are subjected to Registrar's office approval).

**Students should contact the instructor within one week of starting date of the Winter term if they find a conflict with the scheduled quizzes and midterm test.**

There will be a **three-hour final exam** during the final examination period (to be scheduled by the Registrar's Office).

Your **final marks** will be based on the following:

Quizzes	16 % (8 % for each)
Projects	12% (4% for each)
Participations	6% (=3% class attendance + 3% in-class and forum discussions)
Test	32 %
Final Exam	34 %

Note that there is no **make-up** for quizzes and the midterm test. Any points from a missed quiz/test will be re-distributed to other proctored assessments proportionally. In addition, students are expected to follow online submission deadlines; any late submission will be penalized (e.g. 30 minutes late equals 100% reduction of that assessment).

## 7. Accommodation and Accessibility

### Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The Academic Accommodation for Students with Disabilities policy 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)

### Academic Consideration for Student Absence

Students will have up to two (2) opportunities during the regular academic year to use an on-line portal to self-report an absence during the semester, provided the following conditions are met: the absence is no more than 48 hours in duration, and the assessment for which consideration is being sought is worth 30% or less of the student's final grade. Students are expected to contact their instructors within 24 hours of the end of the period of the self-reported absence, unless noted on the syllabus. Students are not able to use the self-reporting option in the following circumstances:

- for exams scheduled by the Office of the Registrar (e.g., December and April exams)
- absence of a duration greater than 48 hours,
- assessments worth more than 30% of the student's final grade,
- if a student has already used the self-reporting portal twice during the academic year

If the conditions for a Self-Reported Absence are *not* met, students will need to provide a Student Medical Certificate if the absence is medical, or provide appropriate documentation if there are compassionate grounds for the absence in question. Students are encouraged to

contact their Faculty academic counselling office to obtain more information about the relevant documentation.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For policy on Academic Consideration for Student Absences - Undergraduate Students in First Entry Programs, see:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic\\_Consideration\\_for\\_absences.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf)

and for the Student Medical Certificate (SMC), see:

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf)

### **Religious Accommodation**

Students should consult the University's list of recognized religious holidays, and should give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic Counsellor if their course requirements will be affected by a religious observance. Additional information is given in the Western Multicultural Calendar:

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

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](http://www.registrar.uwo.ca/examinations/exam_schedule.html)).

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 Academic Calendar for details (under [Special Examinations](#)).

## **8. 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.

**All of the remote learning sessions for this course will be recorded.** The data captured during these recordings may include your image, voice recordings, chat logs and personal identifiers (name displayed on the screen). The recordings will be used for educational purposes related to this course, including evaluations. The recordings may be disclosed to other individuals participating in the course for their private or group study purposes. Please contact the instructor if you have any concerns related to session recordings.

Participants in this course are not permitted to record the sessions, except where recording is an approved accommodation, or the participant has the prior written permission of the instructor.

**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](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).

Tests and examinations in this course will be conducted using the remote proctoring service, such as Proctortrack. 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**. More information about this remote proctoring service is available in the Online Proctoring Guidelines at the following link:

<https://www.uwo.ca/univsec/pdf/onlineproctorguidelines.pdf>

Quizzes in this course will be conducted using Zoom. You will be required to keep your camera on for the entire session, hold up your student card for identification purposes, and share your screen with the invigilator if asked to do so at any time during the exam. The exam session will **not** be recorded.\*

More information about the use of Zoom for exam invigilation is available in the Online Proctoring Guidelines at the following link:

<https://www.uwo.ca/univsec/pdf/onlineproctorguidelines.pdf>

Completion of this course will require you to have a reliable internet connection and a device that meets the system requirements for Zoom. Information about the system requirements are available at the following link:

<https://support.zoom.us/hc/en-us>

\* Please note that Zoom servers are located outside Canada. If you would prefer to use only your first name or a nickname to login to Zoom, please provide this information to the instructor in advance of the test or examination.

## 9. Support Services

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

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 (519) 661-2147 if you have any questions regarding accommodations.

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/>.

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](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>.