AS 3424/9424 Short Term Actuarial Math I
Course Outline

1. Course Information

Course Information

Course name:	AS 3424B/9424B - Short Term Actuarial Math I
Academic Term:	Winter 2023
Lecture hours and location:	MWF 9:30am - 10:30am, AHB-1B04

List of Prerequisites

Prerequisites: A minimum mark of 60% in Statistical Sciences 3657 A/B

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

Instructors	Email	Office	Phone	Office Hours
Dr. Shu Li (Instructor & Course Coordinator)	shu.li@uwo.ca	WSC 229	5196612111 ext. 85419	
Duo Xu (Teaching assistant)	dxu258@uwo.ca		-	

Students must use their Western (@uwo.ca) email addresses when contacting their instructors, and indicate the course number (AS 3424) 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 reserves; survival model and their estimation; mortality Improvement and longevity models.

Learning Outcomes: The course material supports part of the Learning Objectives/Outcomes from SOA Exam FAM–Fundamentals of Actuarial Mathematics Syllabus.

Type	Mode	Dates	Time	Frequency
Lecture	In-person	MWF	9:30am - 10:30am	weekly

Note that the office hours are held in-person.

Key Sessional Dates
    Classes begin: January 9, 2023;
    Spring Reading Week: February 18 – February 26, 2023;
    Classes end: April 10, 2023;
    Exam period: April 13 – 30, 2023.

Contingency plan for an in-person class pivoting to 100% online learning
In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, affected course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

4. Course Materials

Textbook: *Loss Models: From Data to Decisions*, by Klugmann, S.A., Panjer, H.H., and Willmot, G.E., John Wiley and Sons, Inc., 2019, **5th Edition.**

A student solutions manual to accompany Loss Models text has been published and this can be purchased online from Amazon.

This course is intended to familiarize the student with a variety of techniques for the analysis of aggregate losses. Following the introductory Chapters 1 and 2 of the textbook, coverage will focus primarily on Chapters 3 through 9.

More precisely, the following topics are covered:

   A. Severity models
        1. Calculate the basic distributional quantities: a) moments; b) percentiles; c) generating functions.
        2. Describe how changes in parameters affect the distribution.
        3. Recognize classes of distributions and their relationships.
        4. Apply the following techniques for creating new families of distributions: a) multiplication by a constant; b) raising to a power; c) exponentiation; d) mixing.
        5. Identify the applications in which each distribution is used and reasons why.
        6. Apply the distribution, given the parameters.
        7. Calculate various measures of tail weight and interpret the results to compare the tail weights.

B. Frequency models

For the Poisson, mixed Poisson, binomial, negative binomial, geometric distribution and mixtures thereof:

1. Describe how changes in parameters affect the distribution.
2. Calculate moments and generating functions.
3.

5. Methods of Evaluation

The overall course grade will be

exemption grade in this course may qualify a student from exemptions from writing certain preliminary exams. **This is the last year of the CIA course accreditation program.**

Major in Actuarial Science
If you are a student in a major in Actuarial Science, the CIA program accreditation program will not apply to you. If your plan is to become a fully qualified actuary, you will need to continue to write and pass the preliminary exams of the SOA. However, for 2022-23 this course is still accredited under the Canadian Institute of Actuaries (CIA) University Course Accreditation Program (UAP) for the 2022-23 academic year. Achievement of the established exemption grade in this course may qualify a student from exemptions from writing certain preliminary exams. **This is the last year of the CIA course accreditation program.**

Please see the following link for full details:

http://www.cia-ica.ca/membership/university-accreditation-program---home

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)

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 may 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/.