

AS3431B (AS 9007) Course Outline

Department of Statistical and Actuarial Sciences

Instructor: Dr. Amin H. Zadeh

1 Course Information

Title: Long-term Actuarial Mathematics III(AS 9007 Advanced Multistate Models)

Lecture hours and location: MWF 8:30 am–9:20 am; WSC 240

Office hours: MWF 10:30 am–11:30 am

Key Dates

Table 1: Key academic dates for AS3424B

Classes Start	Jan 6
Reading Week	Feb 15–20
Classes End	Apr 4
Study Day(s)	Apr 5–6
Exam Period	Apr 7–30
Last day to add a second-term half course or drop a course without showing WDN	Jan 17
Last day to withdraw from a second-term half course without academic penalty	Mar 31

Course 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 life Insurance and other long term coverages including disability income and other health care coverages.

Prerequisites

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

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

Table 2: Contact information

Instructor	Email	Office	Phone	Office Hours
Dr. Amin H. Zadeh	ahassa45@uwo.ca	WSC 105		MWF 10:30–11:30 am
Amirhossein Aminimanesh (GTA)	aaminima@uwo.ca	Online ¹		TUE: 1:00 –2:00 pm

Students must use their Western (@uwo.ca) email addresses when contacting their instructors.

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

Honours Specialization in Actuarial Science

If you graduate from Western with an Honours Specialization (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 you plan 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/>

4 Course Materials

Textbooks

Actuarial Mathematics for Life Contingent Risks (3rd ed., 2020) by Dickson, C.M.D., Hardy, M.R., and Waters, H.R., Cambridge University Press. The course will cover Chapters 8–13, and, time permitting, may also include material from Chapters 14 and 17.

¹[Zoom link](#)

Textbook Information

- The textbook costs:
 - Hardcopy: \$123.40
 - Ebook (permanent access): \$115
- Students must purchase this edition of the textbook; older editions will not be sufficient.
- The textbook may be purchased through the Western Bookstore: <https://bookstore.uwo.ca/>
- A solutions manual for the *AMLCR* textbook is also available.

Course Website

All course material will be posted on OWL Brightspace:

<https://westernu.brightspace.com/>

Students are responsible for regularly checking the course OWL site for news 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 by phone at 519-661-3800 or ext. 83800.

Technical Requirements

SOA-approved non-programmable calculators are required for the midterm tests and the final exam.

5 Methods of Evaluation

Assignments

Some practice questions will be assigned in class to help students understand the material. These questions are important in the preparation for the midterms and the final exam.

Midterms or Tests

Three midterm tests will be given on Jan 30, Feb 27, and Mar 20, respectively, during regular class time. Each midterm is 50 minutes long. The material covered in the midterm tests is cumulative.

Final Exam

There will be a 3-hour final exam. Its date and time will be announced by the Registrar's Office, usually near the first part of March. Students are required to wait until the final exam schedule is posted before planning travel. Exams will **not** be moved to accommodate students who ignore this requirement.

Both the midterm and the final exams are closed-book. The overall course grade will be calculated as follows:

SOA-approved non-programmable calculators are allowed for the midterm tests and the final exam.

Table 3: Grade breakdown

Midterm Exam 1	12%
Midterm Exam 2	12%
Midterm Exam 3	12%
Final Exam	54%
In-class Activities	5%
Written Assignments	5%

Note that this course is cross-listed with its graduate version AS9007. Exam questions for AS9007 may differ by up to 30% from those for AS3431B.

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

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:

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. Examinations scheduled during official examination periods (Final Exams) are excluded from this, and therefore always require formal supporting documentation.

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.

It is advisable for students to write the exams on the date and time they are scheduled unless they are truly sick and unable to write.

In Summary

(a) In case you need to miss midterm tests 1, 2, or 3, you may:

- request an academic consideration without supporting documents (one per term per course),
- request an academic consideration with supporting documents.

With the Academic Advising Office's approval, the weight of the midterm (15%) will be moved to the final exam.

(b) In case you need to miss the final exam, you need to:

- request an academic consideration with supporting documents,
- with the Academic Advising Office's approval, a makeup exam for the final will be given in early May.

Evaluation Scheme for Missed Assessments

There will be no make-up exams for a missed midterm. For those who legitimately miss a midterm and provide the required supporting documentation, the standard practice will be that the weight of the missed midterm will be reassigned to the final exam. If your reason is not deemed valid, then you will receive a mark of 0.

If you miss the Final Exam and your Academic Consideration has been granted, you will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under "Special Examinations"), especially for those who miss multiple final exams within one examination period.

6 Additional Statements

6.1 Religious Accommodation

When a recognized religious holiday or observance conflicts with an examination, test, or other scheduled academic obligation, students must request accommodation through the University's **Student Absence Portal (SAP)**. The request must identify the conflict and specify which course component(s) are affected.

Students are encouraged to submit SAP requests as early as possible, and no later than:

- two weeks before any examination, or
- one week before any midterm test or quiz.

The SAP request serves as official notification to both the course instructor and the Academic Advising Office, in accordance with University policy:

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

The Faculty of Science treats religious accommodations as **scheduling conflicts**. Instructors will provide either a make-up exam or an earlier sitting of the same exam.

For recognized religious holidays, please consult the University's Diversity Calendar:

<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 is available at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic%20Accommodation_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 University policy:

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

students must use their official Western email account. It is the student's responsibility to monitor email sent to that account.

Requests for Relief from Academic Decisions

- Policy: https://uwo.ca/univsec/pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf
- Undergraduate procedures: https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf
- Graduate procedures (if applicable): 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

Undergraduate procedures:

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf

Graduate procedures (if cross-listed):

https://uwo.ca/univsec/pdf/academic_policies/appeals/graduate_scholastic_offence_procedure.pdf

Use of Electronic Devices During Assessments (Required)

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

Unless explicitly permitted by the instructor, the presence of such a 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 explicitly permitted (e.g., non-programmable calculators) may be brought into the assessment room.

Use of Generative AI Tools (Required)

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini) is **not permitted** for any course assessments, including but not limited to: assignments, lab reports, presentations, tests, or examinations.

Using generative AI for content creation, code writing, problem solving, translation, or summarization—without explicit permission—constitutes a **scholastic offence**.

If use of AI is permitted for a specific assessment, the instructor will clearly define the boundaries of acceptable use. In the absence of explicit permission, students must assume AI use is prohibited.

Use of Turnitin (If applicable)

All required papers may be subject to submission to Turnitin plagiarism detection software. Submitted papers will be included in the reference database solely for plagiarism detection purposes.

Use of Scantron/SCANEX (If applicable)

Computer-marked tests and exams may be submitted for similarity review using SCANEX, which checks for unusual answer patterns.

Remote Proctoring (If applicable)

If remote proctoring software is used, students may be required to provide personal information, including biometric data. Sessions may be recorded. Students must ensure they have a device and internet connection that meet the technical requirements listed here:

<https://remoteproctoring.uwo.ca>

6.5 Support Services

For academic advising (adding/dropping courses, academic considerations, exam conflicts):

<https://www.uwo.ca/sci/counselling/>

Mental Health Support

Students in emotional or mental distress should refer to:

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

Gender-Based and Sexual Violence Support

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

To contact a case manager:

support@uwo.ca

Accessibility

Students requiring materials in alternate formats or other accessibility support should contact the instructor or Accessible Education:

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

Learning Skills Services

<https://learning.uwo.ca>

USC Student Services

<https://westernusc.ca/services/>