Instructor: Iain Beaton ibeaton@dal.ca

Course Delivery: This course will be delivered asynchronously on a weekly basis. For the duration of the semester the course notes for the entire term will be available for students to access. During the semester videos will be posted online weekly at Monday morning covering the material, as well as a weekly quiz which can be completed at any time during the week. Instead of a final exam, there will be three online tests held Oct. 16th, Nov. 6th, and Dec. 8th.

Office Hours: Thursday 10:00-11:00am (Atlantic time) on Collaborate Ultra (or by appointment).

Course Description
This course extends what was done in ACSC/STAT 3720 to deal with common additional features that affect life insurance policies. We introduce multiple-state models, pensions, interest rate risk and profit testing.

Course Prerequisites
ACSC 3720 / STAT 3720

Course Materials
- Textbook:
  - *Study Note: Supplementary Note on Long Term Actuarial Mathematics.*
  - *Study Note: Loss Models Chapters 10-12, From Data to Decisions, 5th edition, 2018*
  - *Both study notes will be provided on Brightspace.*

- Website: Brightspace

Course Topics
Long Term Coverages in Health Insurance, Multiple State Models, Joint Life and Last Survivor Benefits, Mortality Improvement Modelling, Estimation from Empirical Data, Pension Mathematics, Emerging Costs for Traditional Life Insurance.
Course Assessment

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight (% of final grade)</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>40%</td>
<td>Weekly (asynchronous)</td>
</tr>
<tr>
<td>Test #1</td>
<td>25%</td>
<td>October 16th</td>
</tr>
<tr>
<td>Test #2</td>
<td>20%</td>
<td>November 6th</td>
</tr>
<tr>
<td>Test #3</td>
<td>15%</td>
<td>December 8th</td>
</tr>
</tbody>
</table>

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

- A+ (90-100)
- B+ (77-79)
- C+ (65-69)
- D (50-54)
- A (85-89)
- B (73-76)
- C (60-64)
- F (<50)
- A- (80-84)
- B- (70-72)
- C- (55-59)

Course Policies

- Quizzes will be held online weekly. You will be able to take the quiz any time during the week. Once you begin the quiz you will have 15 minutes to finish. The quiz will be one or two questions chosen from a set of testable problems which will be posted on Brightspace at the beginning of the week.
- There will be three tests throughout the semester (Oct. 16th, Nov. 6th, and Dec. 8th). You may complete them anytime during the day it is administered. Once you begin the quiz you will have 75 minutes to finish.
- There will be no extensions for quizzes not completed within the submission. If you miss a test, a score of 0 will be assigned unless you have informed the instructor before the end of the period which the assessment can be completed. For a missed test, a make-up test will be scheduled.

Course Content

This is a tentative weekly schedule for the semester. Note some periods are longer than 7 days.

<table>
<thead>
<tr>
<th>Dates</th>
<th>Topics</th>
<th>Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept. 8-20</td>
<td>Multiple State Models</td>
<td>8.2-8.7, 8.13</td>
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<tr>
<td>Sept. 21-27</td>
<td>Multiple State Models</td>
<td>8.6-8.7</td>
</tr>
<tr>
<td>Sept. 28-Oct. 4</td>
<td>Multiple Decrement Models</td>
<td>8.8-8.10</td>
</tr>
<tr>
<td>Oct. 5-14</td>
<td>Joint Life and Last Survivor Benefits</td>
<td>9.2-9.6</td>
</tr>
<tr>
<td>Oct. 16</td>
<td><strong>Test #1</strong></td>
<td></td>
</tr>
<tr>
<td>Oct. 26-Nov. 4</td>
<td>Emerging Costs for Traditional Life Insurance</td>
<td>LM 12.7, 12.9</td>
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<tr>
<td>Nov. 6</td>
<td><strong>Test #2</strong></td>
<td></td>
</tr>
<tr>
<td>Nov. 9-15</td>
<td><strong>Reading Week (No Class)</strong></td>
<td></td>
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<tr>
<td>Nov. 16-22</td>
<td>Mortality Improvement Modelling</td>
<td></td>
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<tr>
<td>Nov. 23-Dec. 6</td>
<td>Estimation from Empirical Data</td>
<td></td>
</tr>
<tr>
<td>Dec. 8</td>
<td><strong>Test #3</strong></td>
<td>12.5-12.9</td>
</tr>
</tbody>
</table>
University Policies and Statements

This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate.

Missed or Late Academic Requirements due to Student Absence
As per Senate decision instructors may not require medical notes of students who must miss an academic requirement, including the final exam, for courses offered during fall or winter 2020-21 (until April 30, 2021). Information on regular policy, including the use of the Student Declaration of Absence can be found here: https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html.

Academic Integrity
At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. Information: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility
The Advising and Access Services Centre is Dalhousie's centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia). Information: https://www.dal.ca/campus_life/academic-support/accessibility.html

Student Code of Conduct
Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don’t follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner—perhaps through a restorative justice process. If an informal resolution can’t be reached, or would be inappropriate, procedures exist for formal dispute resolution. Code: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Diversity and Inclusion – Culture of Respect
Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness. Statement: http://www.dal.ca/cultureofrespect.html

Recognition of Mi’kmaq Territory
Dalhousie University would like to acknowledge that the University is on Traditional Mi’kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel and support. Visit or e-mail the Indigenous Student Centre (1321 Edward St) (elders@dal.ca). Information: https://www.dal.ca/campus_life/communities/indigenous.html

Important Dates in the Academic Year (including add/drop dates)
https://www.dal.ca/academics/important_dates.html

University Grading Practices
https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html
Student Resources and Support

Advising

General Advising: https://www.dal.ca/campus_life/academic-support/advising.html
Science Program Advisors: https://www.dal.ca/faculty/science/current-students/academic-advising.html
Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html
Black Students Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html
International Centre: https://www.dal.ca/campus_life/international-centre/current-students.html

Academic supports

Library: https://libraries.dal.ca/
Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html
Studying for Success: https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html
Copyright Office: https://libraries.dal.ca/services/copyright-office.html

Other supports and services

Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness/services-support/student-health-and-wellness.html
Student Advocacy: https://dsu.ca/dsas

Safety

Biosafety: https://www.dal.ca/dept/safety/programs-services/biosafety.html
Chemical Safety: https://www.dal.ca/dept/safety/programs-services/chemical-safety.html
Radiation Safety: https://www.dal.ca/dept/safety/programs-services/radiation-safety.html
Scent-Free Program: https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html