

Faculty of Science Course Syllabus
Department of Mathematics and Statistics
ACSC/STAT 3720
Life Contingencies I
Winter 2020

Instructor: Iain Beaton ibeaton@dal.ca Chase 311

Lectures: MWF 12:35am-1:25pm LSC 216

Office Hours: Monday 10:00-11:30 in the Math Learning Centre (Chase 119) or by appointment.

Course Description

This course introduces the student to the mathematical models for valuation of life contingencies (e.g. life insurance policies). The course covers both the statistical aspects of modelling survival data, and the financial aspects of valuing uncertain future cash-flows.

Course Prerequisites

STAT 3360/MATH 3360 and STAT 2600/MATH2600

Course Materials

- Textbook: *Actuarial Mathematics for Life Contingent Risks* (Second Edition) by David C. M. Dickson, Mary R. Hardy and Howard R. Walters, published by Cambridge University Press, 2013
- Website: Brightspace

Course Topics

Survival Models, Life Tables and Selection, Insurance Benefits, Annuities, Premium Calculation, Policy Values.

Course Assessment

Component	Weight (% of final grade)	Date
<i>Quizzes</i>	20%	<i>Weekly</i>
<i>Midterm #1</i>	30%	<i>Friday February 28, 2020</i>
<i>Final</i>	50%	<i>(Scheduled by Registrar)</i>

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 in class weekly. Each quiz will be 10 minutes long at the end of class. The quiz will be two questions chosen from a set of testable problems which will be posted on Brightspace the week prior. The tentative dates for the quizzes are Jan 22, Jan 29, Feb 5, Feb 12, Mar 14, Mar 21, Mar 28, and Apr 4. Your lowest quiz score will not be included in the average for your quiz component
- The midterm will be 50 minutes long and held in class on February 28th. The midterm will cover material from chapters 1-5 from the textbook.
- The final will be 3hrs long and scheduled by Registrar's Office during the examination period: April 8th to April 24th.
- Calculators are permitted for quizzes, midterms, and the exam so long as they are approved beforehand. (i.e. no graphing calculators).
- If you miss a midterm or quiz, a score of 0 will be assigned unless you have informed the instructor **beforehand**. In the case of a missed quiz, the missed quiz score will not be included in the average for that component. For a missed midterm, a make-up midterm will be scheduled.

Weekly Readings

To gain the full benefit from the lecture, I highly suggest reading the relevant sections in the textbook beforehand. The sections which are to be covered each class will be available on Brightspace.

Course Content

This is a tentative schedule for the semester. A more detailed version is available on Brightspace and will be updated regularly.

Dates	Topics	Chapters
Jan 6-11	Introduction to Life Insurance, Survival Models	1.2-1.7, 2.2-2.3
Jan 13-18	Survival Models (cont.), Lifetables and Selection	2.4-2.6, 3.2-3.7
Jan 20-25	Lifetables and Selection (cont.), Insurance Benefits	3.8-3.10, 4.2-4.5
Jan 27-31	Insurance Benefits (cont.), Annuities	4.6-4.7, 5.2-5.5
Feb 3-5	Annuities (cont.)	5.6-5.12
Feb 7	Monro Day (No Class)	
Feb 10-14	Annuities (cont.)	5.12-5.13
Feb 17-21	Reading Week (No Class)	
Feb 24-26	Review	1-5
Feb 28	Midterm (In Class)	
Mar 3-7	Premium Calculation	6.1-6.7
Mar 10-14	Premium Calculation (cont.), Policy Values	6.8-6.9, 7.1-7.3
Mar 17-21	Policy Values (Cont.)	7.3-7.4
Mar 24-28	Policy Values (Cont.)	7.4-7.6
Mar 30-Apr 4	Policy Values (Cont.), Review	7.7-7.9
Apr 6	Review	1-7

Faculty of Science Course Syllabus (Section B)
Life Contingencies I– ACSC/STAT 3720

University Policies and Statements

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

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

Missed or Late Academic Requirements due to Student Absence (policy)

https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.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>

Fair Dealing Guidelines <https://libraries.dal.ca/services/copyright-office/fair-dealing.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>

Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html

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>