



UNIVERSITY OF
CALGARY

FACULTY OF
SCIENCE

Department of Mathematics and
Statistics

Actuarial Science 527

Life Contingencies III

(see Course Descriptions for the applicable academic year: <http://www.ucalgary.ca/pubs/calendar/>)

Syllabus:

Main reference Text: "Actuarial mathematics for life contingent risk (Second edition)",
by David C.M. Dickson, Mary R. Hardy and Howard R. Waters

Syllabus

Topics

Chapter 8.7-8.13: Multiple decrement models

Chapter 9: Joint life and last survivor benefits

Chapter 10: Pension mathematics

Chapter 12: Emerging costs for traditional life insurance

Chapter 13: Participating and Universal Life Insurance

Instructor may draw materials for assigned topics from an alternative text which uses the notation given in the main reference text.

It is intended that this course should cover an approximately one third of the syllabus for the Society of Actuaries Exam MLC – Models for Life Contingencies. This course syllabus should be updated as needed, with this objective in mind.

ACSC 527: Life Contingencies III

Course outcomes:

By the end of this course, students will be able to:

1. Calculate present values of annuities and insurances on independent and dependent multiple lives.
2. Calculate present values and cash flows of Universal insurances and participating insurances.
3. Describe and compare defined benefits plans and defined contribution plans.
4. Identify and interpret the common states and decrements for pension plans, and the parametric and tabular models, including Markov chain models, associated with these decrements.
5. Calculate and interpret the actuarial accrued liability and the normal cost for defined benefit plans under projected unit credit (PUC) and traditional unit credit (TUC) funding.
6. Calculate the impact of changing mortality, expenses and investment assumptions for all the products that was discussed in the course.

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