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.

Additional Text:
- Society of Actuaries Study Note LTAM-21-18. Long Term Actuarial Mathematics Supplementary Note

<u>Topics</u>

Chapter 8: Multiple state models for single life (excluding sections 8.8-8.11).

Chapter 9: Multiple state models for multiple lives (sections 9.5-9.7 only).

Chapter 10: Pension mathematics.

Chapter 12: Emerging costs for traditional life insurance.
LTAM-21-18: Long Term Actuarial Mathematics Supplementary Note

It is intended that this course should cover an approximately one third of the syllabus for the Society of Actuaries Long-Term Actuarial Mathematic (LTAM) exam. This course syllabus should be updated as needed, with this objective in mind.

Course Outcomes

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

1. Describe the behavior of Markov chain models, identify possible transitions between states, and calculate and interpret the probability of being in a particular state and transitioning between states.
2. Calculate present values and cash flows for traditional life 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.
7. Understand mortality improvement models.

2019:06:24