



ACSC 437

Actuarial Models

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

ReferenceTexts: “Loss Models,” by Klugman, Panjer, and Willmot, fourth edition, 2012

Syllabus

Topics

Chapter 2: Random Variables

Chapter 3: Basic Distributional Quantities Chapter 4: Characteristics of Actuarial Models

Chapter 5: Continuous Models

Chapter 6: Discrete Distributions and Processes

Chapter 7: Advanced Discrete Distributions

Chapter 8: Frequency and Severity with Coverage Modifications

Chapter 9: Aggregate Loss Models

Some of the material in the chapters listed above is clearly a review of material that appears in MATH 321 or MATH 323 or STAT 323 (e.g., like Sections 3.1 and 3.2), and may be covered as a reading assignment rather than during class time.

It is intended that this course should cover a portion of the syllabus for that part of the professional actuarial examination concerned with the Construction and Evaluation of Actuarial Models. Currently, this corresponds to most of the material listed above from Chapters 3-6, 8 and 9 that is on the syllabus for the Society of Actuaries Exam C. 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. Calculate various distributional quantities for severity models.
2. Generate new distributions and distribution families by changing parameters or by transforming well-known continuous distributions.
3. Identify and classify continuous distributions in the context of loss severity models.
4. Use the class $(a,b,0)$ and $(a,b,1)$ family of discrete distributions in frequency models context.

5. Calculate aggregate loss distributions.
6. Calculate expected losses with deductibles, limits and coinsurances both at individual level and at aggregate level.

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