



UNIVERSITY OF
CALGARY

FACULTY OF
SCIENCE

Department of Mathematics and
Statistics

Actuarial Science 517: Estimating Unpaid Claims in General Insurance

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

Syllabus

The readings are from Casualty Actuarial Society (CAS) Exam 5. The course will be using the two free text books published by the CAS as the main reference. The text books are posted on D2L. The course will cover the following chapters.

1. Basic Rate Making Techniques (Fifth edition, May 2016):
 - a. Chapter 1: Introduction
 - b. Chapter 2: Rating Manual
 - c. Chapter 3: Rate making Data
 - d. Chapter 4: Exposures
 - e. Chapter 5: Premium
 - f. Chapter 6: Losses and LAE ((Except the loss development section in pages 105-109)
2. Estimating Unpaid Claims Using Basic Techniques (First Edition 2010)
 - a. Chapter 5: Development Triangle
 - b. Chapter 6: Development Triangle as a Diagnostic Tool
 - c. Chapter 7 – Development Technique
 - d. Chapter 8 – Expected Claims Technique
 - e. Chapter 9 – Bornhuetter-Ferguson Technique
 - f. Chapter 10 – Cape Cod Technique
 - g. Chapter 11 – Frequency-Severity Techniques
 - h. Chapter 12 – Case Outstanding Development Technique
 - i. Chapter 13 – Berquist-Sherman Techniques
 - j. Chapter 14 – Recoveries: Salvage and Subrogation and Reinsurance
 - k. Chapter 15 – Evaluation of Techniques

Course outcomes:

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

1. Identify different types of data used for actuarial analysis
2. Recognize differences in how data are aggregated and segregated.
3. Identify trend adjustments and describe the relationship between trend and loss

development.

4. Estimate written, earned and unearned premiums.
5. Adjust historical earned premiums to current rate levels.
6. Use loss development triangles for investigative testing.
7. Calculate ultimate claims using various projection methods: development method, expected method, Bornhuetter Ferguson method, Cape Cod method, frequency-severity methods, Berquist-Sherman methods.
8. Assess the appropriateness of the projection methods in varying circumstances.
9. Evaluate and justify selections of ultimate values based on the method.

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