UNIVERSITY OF CALGARY

FACULTY OF SCIENCE
Department of Mathematics and Statistics

Actuarial | Credibility

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

Reference Text: "Loss Models," by Klugman, Panjer, and Willmot, fifth edition, 2019.

Syllabus

Topics

Chapter 13: Bayesian Estimation

Chapter 15: Model Selection

Chapter 16: Introduction to Limited Fluctuation Credibility

Chapter 17: Greatest accuracy Credibility

Chapter 18: Empirical Bayes Parameter estimation

It is intended that this course should cover a portion of the syllabus for that part of the professional actuarial examination concerned with the Short-Term Actuarial Mathematics (STAM) exam. Currently, the material listed above on the syllabus for the Society of Actuaries Exam STAM. This course syllabus should be updated as needed, with this objective in mind.

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Course outcomes

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

1. Carry out Bayesian methods of distribution parameter estimation.
2. Select the appropriate model for the data using standard diagnostic tools.
3. Apply and critique limited fluctuation (classical) credibility.
4. Explain and apply Bayesian credibility.
5. Apply conjugate priors in Bayesian credibility.
6. Apply Buhlmann and Buhlmann-Straub models and understand their relationship to Bayesian models.
7. Explain and apply empirical Bayesian method in the nonparametric and semiparametric cases.

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