



Students requiring accommodations as a result of disability, must contact the Centre for Students with Disabilities 778-782-3112 or csdo@sfu.ca

Instructor: [Dr. Cary Tsai](#)

Prerequisite:

STAT 285

Required Text:

Loss Models: From Data to Decisions, 3rd Edition, 2008, S.A.Klugman, H.H. Panjer and G.E. Willmot; publisher: Wiley

References:

Introduction to Probability Models, (8th Edition), 2003, S.M. Ross

Foundations of Casualty Actuarial Science (4th Edition), 2004, H.C.Mahler and C.G. Dean

Introduction to Credibility Theory (3rd Edition), 1999, T.N.Herzog ACTEX

ACTEX Study Manual for SOA Exam C and CAS Exam 4, by S.A.Broverman, Publisher: ACTEX

Calendar Description:

Limited fluctuation credibility theory: full credibility, partial credibility. Greatest accuracy credibility theory: the Bayesian methodology, the credibility premium, the Buhlmann model, the Buhlmann-Straub model, exact credibility, linear versus Bayesian versus no credibility. Empirical Bayes parameter estimation: nonparametric estimation, semiparametric estimation, parametric estimation. Simulation: basics of simulation, simulation in actuarial modeling. Covers part of the syllabus for C of the Society of Actuaries, and Exam 4 of Casualty Actuarial Society. **Quantitative.**

Outline:

This course studies the subject of Credibility Theory. The topics covered correspond to chapters 19-17 of the required text. They include the following:

Credibility Theory:

- Limited fluctuation credibility
- Bayesian credibility: non-parametric and semi-parametric
- Bühlmann and Bühlmann-Straub models
- Conjugate priors

Stochastic Processes:

- Poisson process
- Exponential distribution

Grading Scheme:

Assignments - 10%

Midterm - 40%

Final - 50%

Grading is subject to change.

Students should be aware that they have certain rights to confidentiality concerning the return of course papers and the posting of marks. Please pay careful attention to the options discussed in class at the beginning of the semester. Students are reminded that Academic Honesty is a cornerstone of the acquisition of knowledge. Scholarly integrity is required of all members of the University. Please consult the General Guidelines of the calendar for more details.