ACMA 315-3
CREDIBILITY THEORY & LOSS DISTRIBUTIONS

Spring 2005
EVENING COURSE

Instructor: Cary Tsai

Prerequisites:

STAT 280 or 285 must precede or be taken concurrently.

Textbook:

Loss Models: From Data to Decisions,

Calendar Description:

Estimation for Complete Data. Estimation for Modified Data. Parameter Estimation. Model Selection. Interpolation and Smoothing. Simulation. Full credibility. Partial credibility. Credibility Premium. Bayesian credibility. Bühlmann and Bühlmann-Straubmodels.

Outline:

This course studies reasonable and usable approximations to the distribution of incurred losses for insured events. It also introduces the subject of Credibility Theory. The topics covered correspond to the syllabus of Exam C of the Society of Actuaries (or Exam 4 of Casualty Actuarial Society) and they include the following:

Loss Distributions:
 ~ Construction of Empirical Models
 ~ Construction and Selection of Parametric Models
 ~ Interpolation and Smoothing
 ~ Simulation

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

Grading:

Assignments - 10%
Midterm I - 20%
Midterm II - 20%
Final - 50%

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.

Revised October 2004