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Spring 2005  
DAY COURSE

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Instructor: Cary Tsai

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**Prerequisites:**

Prerequisite ACMA 320 or permission of the Department of Statistics and Actuarial Science. Recommended ACMA 335.

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**Textbook:**

*Loss Models: From Data to Decisions*, 2nd Edition, 2004, S.A.Klugman, H.H. Panjer and G.E. Willmot

**References:**

*Introduction to Probability Models* (8th Edition) 2003, S.M. Ross  
"Multi-State Transition Models with Actuarial Applications", J.W. Daniel  
"Models with Variable (Stochastic) Interest Rates", R.J. Cunningham  
*ACTEX Manual for SOA Exam M (or CAS Exam 3)*, 2005, see website:www.actexamdriver.com

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**Calendar Description:**

Exponential Distribution and Poisson Process. Classifying and Creating Distributions. Frequency and Severity with Coverage Modifications. Aggregate Loss Models. Markov Chain models. Brownian motion. Geometric Brownian motion. Binomial trees.

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**Outline:**

This course studies frequency and aggregate loss models. It also introduces the subject of stochastic interest models and no-arbitrage. The topics covered correspond to about half of the syllabus of Exam M of the Society of Actuaries (or Exam 3 of Casualty Actuarial Society) and they include the following:

- ~ Frequency models
  - ~ Compound (aggregate) models
  - ~ Simple models with stochastic interest rates
  - ~ No-Arbitrage Pricing
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**Grading:**

- Assignments - 10%
  - Midterm I - 20%
  - Midterm II - 20%
  - Final - 50%
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*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 department and acquisition of knowledge. Scholarly integrity is required of all members of the university. Please consult the General Guidelines of the calendar for more details.*

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