



ACMA 822

Risk Measures and Ordering

Spring 2009
Day Course

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 or permission of the instructor.

Required Text:

Lecture Notes and selected papers.

References:

- § Actuarial Theory for Dependent Risks: Measures, Orders and Models, 2005, M. Denuit, J. Dhaene, M.J. Goovaerts and R. Kaas; publisher: John Wiley & Sons
- § Stochastic Orders, 2007, M. Shaked and G. Shanthikumar; publisher: Springer Science+Business Media, LLC
- § Insurance Premiums, 1984, M.J. Goovaerts, F. De Vylder, and J. Haezendonck; publisher: North-Holland

Calendar Description:

An advanced course in actuarial risks. Insurance premium calculation principles and associated properties. Risk measures and ordering. Actuarial application.

Outline:

This course studies the actuarial and financial risks. A variety of risk measures and orders, and premium calculation principles and associated properties will be introduced. They include the following:

- ~ Stochastic order
- ~ Stop-loss order
- ~ Hazard rate order
- ~ Likelihood ratio order
- ~ Other orders
- ~ Higher degree order
- ~ Premium calculation principles
- ~ Properties of premium calculation principles
- ~ Ordering of risks under proportional hazards transforms
- ~ Actuarial applications

Grading Scheme:

Assignments – 10%
Reading & Presentation – 15%
Project – 25%
Exam – 50%

The 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.

Revised November 2008