



# ACMA 490-3

## Selected Topics: Risk Measures and Ordering

Spring 2013  
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](mailto:csdo@sfu.ca)

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Instructor: [Dr. Cary Tsai](#)

### **Prerequisite:**

ACMA 335.

### **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:**

Actuarial risks. Insurance premium calculation principles and properties. Risk measures and ordering. Applications.

### **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.*

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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 acquisition of knowledge. Scholarly integrity is required of all members of the University. Students are encouraged to review policies pertaining to academic integrity available on Student Services webpage at <http://students.sfu.ca/academicintegrity.html>*

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