FALL 2017 - ACMA 355 E100

LOSS MODELS I (3)

Class Number: 8533 *Delivery Method: In Person*

COURSE TIMES + LOCATION:

Mo, Th 7:00 PM – 8:20 PM
AQ 5005, Burnaby

EXAM TIMES + LOCATION:

Dec 11, 2017
7:00 PM – 10:00 PM
AQ 5016, Burnaby

INSTRUCTOR:

John Giles
jgiles@sfu.ca
Office: AQ 5005
Office Hours: Mon & Thur 6:30-7:00

COREQUISITES:

STAT 330.

Description

CALENDAR DESCRIPTION:

Severity models. Risk measures. Frequency models. Estimation: complete data, modified data, empirical distribution, Nelson-Aalen, ogive, Kaplan-Meier, kernel density, interval. Parametric estimation: method of moments, MLE. Bayesian estimation. Model selection. Covers part of the syllabus for Exam C of the Society of Actuaries and Exam 4 of the Casualty Actuarial Society. Quantitative.

COURSE DETAILS:

Outline:

This course covers the fundamentals of actuarial loss models. The topics covered correspond to Chapters 3-6, 10-14, 15.1-15.2, and 16 of the required textbook. They include the following:

1. Severity models: basic distributional quantities, tail behavior, risk measures, creating new distributions, extreme value distributions.
2. Frequency models: Poisson, negative binomial, binomial distributions, (a,b,0) class, truncation and modification at zero.
3. Review of mathematical statistics: point estimation, measures of quality, interval estimation, tests of hypotheses. Estimation for complete and modified data: empirical distributions for individual and grouped data, Nelson-Åalen estimator.
4. Kaplan-Meier estimator; means, variance, interval estimation, kernel density models, approximations for large data sets.
5. Parameter estimation: method of moments, percentile matching, maximum likelihood estimation, variance and interval estimation, estimation for discrete distributions. Bayesian estimation.
6. Model selection: graphical comparison, hypothesis tests.

This course is accredited under the Canadian Institute of Actuaries (CIA) University Accreditation Program (UAP) for the 2017-2018 academic year. Achievement of the established exemption grade in this course may qualify a student for exemptions from writing certain preliminary exams. Please note, a combination of courses may be required to achieve a single exemption. Please see http://www.cia-ica.ca/membership/uap for full details.

Grading

Assignments	10%
Midterm	40%
Final	50%

NOTES:

Above grading is subject to change.

Materials

REQUIRED READING:

Loss Models: From Data to Decisions, 4th ed., Authors: S.A. Klugman, H.H. Panjer, and G.E. Willmot. Publisher: Wiley

RECOMMENDED READING:

ACTEX Study Manual for SOA Exam C and CAS Exam 4, *Fall 2005 Edition,* by S.A.Broverman, Publisher: ACTEX

Survival Models and Their Estimation, 3rd Edition, by D. London, Publisher: ACTEX

DEPARTMENT UNDERGRADUATE NOTES:

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

Tutor Requests:
Students looking for a Tutor should visit http://www.stat.sfu.ca/teaching/need-a-tutor-.html. We accept no responsibility for the consequences of any actions taken related to tutors.

REGISTRAR NOTES:

SFU's Academic Integrity web site http://students.sfu.ca/academicintegrity.html is filled with information on what is meant by academic dishonesty, where you can find resources to help with your studies and the consequences of cheating. Check out the site for more information and videos that help explain the issues in plain English.

Each student is responsible for his or her conduct as it affects the University community. Academic dishonesty, in whatever form, is ultimately destructive of the values of the University. Furthermore, it is unfair and discouraging to the majority of students who pursue their studies honestly. Scholarly integrity is required of all members of the University. http://www.sfu.ca/policies/gazette/student/s10-01.html

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