

# 22S: 176 - Credibility and Loss Distributions

## Instructor: Dr. Qihe Tang

- Office: 360 SH; Phone: (319) 335-0730; E-mail: [qihe-tang@uiowa.edu](mailto:qihe-tang@uiowa.edu)
- Course Schedule: 11:30 A.M. –12:20 P.M., Monday, Wednesday, and Friday, 71 SH
- Office Hours: 10:30–11:30 A.M., Monday, Wednesday, and Friday, or by appointment
- ICON Website: <http://icon.uiowa.edu>  
(Visit this site DAILY to get my teaching material.)
- DEO: Luke Tierney; 241 SH; E-mail: [luke-tierney@uiowa.edu](mailto:luke-tierney@uiowa.edu); Phone: (319) 335-0712

## Description of Course

This course is intended for students who are studying for the professional examination on Construction and Evaluation of Actuarial Models given by the Casualty Actuarial Society and the Society of Actuaries.

Topics include: Parametric estimation; Model selection; Estimation and model selection for more complex models; Credibility; Simulation; The lognormal distribution; Monte Carlo valuation.

We shall follow the description of SOA Exam C at:

<http://www.soa.org/files/pdf/edu-2009-spring-exam-c.pdf>

## Textbook

- Klugman, Stuart A.; Panjer, Harry H.; Willmot, Gordon E. Loss Models: from Data to Decisions (3rd edition). 2008.  
**Chapter 15**, Sections 15.1–15.3, 15.5, 15.6.1–15.6.3, 15.6.6; **Chapter 16**; **Chapter 17**, Section 17.3; **Chapter 20**, Sections 20.2, 20.3 (excluding 20.3.8), 20.4 (excluding 20.4.3); **Chapter 21**, Sections 21.1–21.2.3, and 21.2.6
- Solutions Manual for “Klugman, Stuart A.; Panjer, Harry H.; Willmot, Gordon E. Loss Models: from Data to Decisions (3rd edition). 2008.”
- McDonald, Robert L. Derivatives Markets (2nd edition). 2006.  
**Chapters 18–19**

## Evaluation System

You will find that problems from the textbook and the past SOA exams are useful in preparing for exams of this course. You are to use an official CAS/SOA calculator during all exams of this course.

### 1. Homework: 10%

Roughly, there is one homework each week consisting of three to five questions. Normally, I assign the questions every Friday and ask you to hand in your solutions at the beginning of the class on the following Friday.

You are always welcome to discuss homework problems with me during my office hours or by appointment. You are also encouraged to discuss homework problems with other students. However, **what you hand in must ultimately be your own work.**

**2. Midterms:  $30\% \times 2 = 60\%$**

There are two closed-book midterms consisting of short-answer type questions. The schedules of these midterms are as follows:

**Midterm 1:** 5:30-7:30 PM, Monday, March 30, in room 51 SH

**Midterm 2:** 5:30-7:30 PM, Monday, April 20, in room 51 SH

**3. Final: 30%**

Similar to the midterms, the final exam is closed-book and consists of short-answer type questions. Its schedule is

**Final Exam:** 12:00-14:00 P.M. on Wednesday, May 13, 2009, in room 66 SH.

(Note that the final exams of 22S:171 and 22S:176 are at the same time. This is due to the time conflict with the SOA Exam C, which is scheduled as 8:30 A.M. -12:30 P.M., Thursday, May 14, 2009.)

**4. Grading**

Tentatively, the final grade for graduate students will be assigned according to

F [0, 46)		
D- [46, 50.5)	D [50.5, 55)	D+ [55, 59.5)
C- [59.5, 64)	C [64,68.5)	C+ [68.5, 73)
B- [73, 77.5)	B [77.5, 82)	B+ [82, 86.5)
A- [86.5, 91)	A [91, 95.5)	A+ [95.5, 100]

and the final grade for undergraduate students will be assigned according to

F [0, 40)		
D- [40, 45)	D [45, 50)	D+ [50, 55)
C- [55, 60)	C [60,65)	C+ [65, 70)
B- [70, 75)	B [75, 80)	B+ [80, 85)
A- [85, 90)	A [90, 95)	A+ [95, 100]

This is not an absolute scale. It may be adjusted depending on the difficulty of the exams.

— College of Liberal Arts and Sciences: Policies and Procedures —

### Administrative Home of the Course

The administrative home of this course is the College of Liberal Arts and Sciences, which governs academic matters relating to the course such as the add/drop deadlines, the second-grade-only option, issues concerning academic fraud or academic probation, and how credits are applied for various graduation requirements. Different colleges might have different policies. If you have questions about these or other CLAS policies, visit your academic advisor or 120 Schaeffer Hall and speak with the staff. The CLAS Academic Handbook also contains important CLAS academic policies:

[www.clas.uiowa.edu/students/academic\\_handbook/index.shtml](http://www.clas.uiowa.edu/students/academic_handbook/index.shtml)

### Academic Fraud

Plagiarism and any other activities that result in a student presenting work that is not his or her own are academic fraud. Academic fraud is reported to the departmental DEO and then to the Associate Dean for Academic Programs and Services in the College of Liberal Arts and Sciences who deals with academic fraud according to these guidelines:

[www.clas.uiowa.edu/students/academic\\_handbook/ix.shtml](http://www.clas.uiowa.edu/students/academic_handbook/ix.shtml)

### **Making a Suggestion or a Complaint**

Students have the right to make suggestions or complaints and should first visit with the instructor, then with the course supervisor if appropriate, and next with the departmental DEO. All complaints must be made within six months of the incident.

[www.clas.uiowa.edu/students/academic\\_handbook/ix.shtml#5](http://www.clas.uiowa.edu/students/academic_handbook/ix.shtml#5)

### **Accommodations for Disabilities**

A student seeking academic accommodations first must register with Student Disability Services and then meet with an SDS counselor who determines eligibility for services. A student approved for accommodations should meet privately with the course instructor to arrange particular accommodations.

[www.uiowa.edu/~sds/](http://www.uiowa.edu/~sds/)

### **Understanding Sexual Harassment**

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. Visit [www.sexualharassment.uiowa.edu/](http://www.sexualharassment.uiowa.edu/) for definitions, assistance, and the full policy.

### **Reacting Safely to Severe Weather**

The University of Iowa Operations Manual section 16.14 outlines appropriate responses to a tornado (i) or to a similar crisis. If a tornado or other severe weather is indicated by the UI outdoor warning system, members of the class should seek shelter in rooms and corridors in the innermost part of a building at the lowest level, staying clear of windows, corridors with windows, or large free-standing expanses such as auditoriums and cafeterias. The class will resume, if possible, after the UI outdoor warning system announces that the severe weather threat has ended.

### **Student Classroom Behavior**

The ability to learn is lessened when students engage in inappropriate classroom behavior, distracting others; such behaviors are a violation of the Code of Student Life. When disruptive activity occurs, a University instructor has the authority to determine classroom seating patterns and to request that a student exit the classroom, laboratory, or other area used for instruction immediately for the remainder of the period. One-day suspensions are reported to appropriate departmental, collegiate, and Student Services personnel (Office of the Vice President for Student Services and Dean of Students).

### **Missed Exam Policy**

University policy requires that students be permitted to make up examinations missed because of illness, mandatory religious obligations, certain University activities, or unavoidable circumstances. Excused absence forms are required and are available on the Registrar web site.

[www.registrar.uiowa.edu/forms/absence.pdf](http://www.registrar.uiowa.edu/forms/absence.pdf)

### **Final Examinations**

An undergraduate student who has two final examinations scheduled for the same period or more than three examinations scheduled for the same day may file a request for a change of schedule before the published deadline at the Registrar's Service Center, 17 Calvin Hall, 8-4 M-F, (384-4300).