

## Stat 479: Short Term Actuarial Models

Fall 2022

Meets: Tuesday and Thursday from 3:00 to 4:15  
Brown 1154

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### Office Hours:

Tuesday 10:00 am to 11:30 am  
Thursday 10:00 am to 11:30 am  
or by appointment

**Please check email daily as this is the method that I will use to communicate with you.**

## General Information

The course will cover the learning objectives for the Society of Actuaries Examination FAM-S.

Textbooks: Loss Models: From Data to Decisions (Fifth Edition)  
By Klugman, Panjer, and Wilmont  
Published by Wiley

Introduction to Ratemaking and Loss Reserving for Property and Casualty  
Insurance (Fourth Edition), 2015  
by Brown and Lennox, ACTEX, ISBN: 978-1625424747

The textbooks are not required but are recommended.

## Class Structure

This is an in-person class. You are expected to attend each class in person and are strongly encouraged to attend class provided that you are healthy. However, if you are not healthy, you should NOT attend class. Please be considerate of your classmates (and me).

Lectures will NOT be recorded. If you are unable to make it to class, then you will need to get notes from one of your classmates.

As mentioned below, all homework for this class will be provided on the class website. You will submit your homework in Brightspace.

The process for tests and quizzes will be discussed below.

## Classroom Procedures

### *Attendance*

This course follows Purdue's academic regulations regarding attendance, which states that students are expected to be present for every meeting of the classes in which they are enrolled. Attendance will be taken at the beginning of each class and lateness will be noted. When conflicts or absences can be anticipated, such as for many University-sponsored activities and religious observations, the student should inform the instructor of the situation as far in advance as possible. For unanticipated or emergency absences when advance notification to the instructor is not possible, the student should contact the instructor as soon as possible by email or phone. When the student is unable to make direct contact with the instructor and is unable to leave word with the instructor's department because of circumstances beyond the student's control, and in cases falling under excused absence regulations, the student or the student's representative should contact or go to the Office of the Dean of Students (ODOS) website to complete appropriate forms for instructor notification. Under academic regulations, excused absences may be granted by ODOS for cases of grief/bereavement, military service, jury duty, parenting leave, or emergent or urgent care medical care.

If you must miss class at any point in time during the semester, please reach out to me via Purdue email so that we can communicate about how you can maintain your academic progress. For COVID-19 concerns, please see the Fall 2022: What you need to know guidance published July 27. If you find yourself too sick to progress in the course, notify your adviser and notify me via email or Brightspace. We will make arrangements based on your particular situation.

### Calculators

The only calculators permitted for this class will be those permitted to be used on the Society of Actuaries examinations in the Spring 2017. The Society of Actuaries website states: "Candidates may ONLY use the battery or solar-powered Texas Instruments BA-35 model calculator, the BA II Plus\*, the BA II Plus Professional\*, the TI-30Xa or TI-30X II\* (IIS solar or IIB battery), or TI-30XB MultiView (XS Solar or XB Battery). Candidates may use more than one of the approved calculators during an examination." **Use of any other calculator on a test or quiz will result in a zero on that test or quiz.**

**Please bring your calculator to each class.**

## Procedures

Evaluation will be based on a combination of tests, quizzes, and homework.

There will be 6 quizzes during the semester. Quizzes are on the syllabus. The lowest quiz grade will be disregarded.

There will be 2 tests of an hour and 15 minutes each and a two hour final. The final will not be comprehensive.

All tests and quizzes will be closed book and closed notes. You will be able to use the SoA 'cheat sheet.' Calculators are allowed. All tests and quizzes will be taken in class on the date scheduled. Except for illness, you will not be able to reschedule a test or quiz. If you are ill, then there will be a make-up exam. This make-up test or quiz will have different questions and may take a different format than that taken by the other students.

Final grades will be based on the following weights:

Homework	10%
Quizzes	15%
Test 1	25%
Test 2	25%
Final	25%
Total	100%

**Homework:** Homework will be assigned and due every Tuesday. I will not collect this homework. However, most Tuesdays, you will spend the first five minutes of the class working on the homework questions selected at random. It will be identical to the homework question assigned except for different numbers. This question will be collected and graded. Over the semester, there will be ten of these problems with each one being worth one point. No homework quiz will be accepted past the five minute point and no homework scores will be dropped. Each student may not get the same question. These homework questions will be open book and open notes. However, you may not use a copy of the homework that you worked prior to class.

For homework, quizzes and the tests, answers are expected to include all the work necessary to do the problem.

## **Grades**

Grades will be on a plus/minus scale as follows:

<b>Score</b>	<b>Grade</b>
99.5% and above	A+
93-99.4	A
90-92.9	A-
87-89.9	B+
83-86.9	B
80-82.9	B-
77-79.9	C+
73-76.9	C
70-72.9	C-
67-69.9	D+
63-66.9	D
60-62.9	D-
59.9 and below	F

## **Academic Dishonesty (Cheating)**

- **Academic Dishonesty will not be tolerated!**
- **If you cheat on a Quiz, penalty is a zero on Quiz and 5% of the total score for the class. You will not be allowed to drop the Quiz.**
- **If you cheat on a Test, you will receive a failing grade in this class.**

## **Academic Adjustments**

Students who have been certified by the Office of the Dean of Students -- Adaptive Programs as eligible for academic adjustments should see me to discuss the procedures to be followed. This should be done during the first week of classes. Only students who have been certified by the ODOS-Adaptive Programs and who have requested ODOS to send their certification letters to their instructors are eligible for academic adjustments.

Students who are currently undergoing an evaluation process to determine whether they are eligible for academic adjustments, are encouraged to talk to me regarding procedures to be followed.

# Course Outline

November 9, 2022

At this time, this outline is a work in progress and will be updated as necessary. The reading is the material that will be covered on the date listed.

The Homework for the class will consist of the problems posted on the website.

Date	Reading	Problems
8/23	Introduction, Chapter 1-2	
8/25	Chapter 3.1	
8/30	Chapter 3.2, 3.4.2, 3.5, HW Quiz 1	Homework Questions 1-7, 9-11, and 14
9/1	Chapter 4	
9/6	Chapter 5.1-5.4, HW Quiz 2	Homework Questions 8, 12,13, 15-23
9/8	Chapter 6.1-6.6	
9/13	Chapter 8.1-8.2, Quiz 1	Homework Questions 27-38
9/15	Chapter 8.3-8.5	
9/20	Chapter 9.1-9.3, HW Quiz 3	Homework Questions 39-55, 57-60
9/22	Chapter 9.8, Quiz 2	
9/27	Chapter 11	
9/29	Review	
10/4	Test 1	
10/6	Chapter 12.1	
10/11	Break	
10/13	Chapter 12.2	
10/18	Chapter 12.3, HW Quiz	Homework 81-87, 89, 90, 93
10/20	Chapter 16, Quiz 3	
10/25	Chapter 16, HW Quiz	Credibility Homework
10/27	Chapter 16	
11/1	Test 2	Coverages Homework
11/3	Coverages	
11/8	Coverages, HW Q7	
11/10	Loss Reserves, Quiz 4	
11/15	Loss Reserves, HW Q8	Loss Reserve Homework, 1-7 only
11/17	Loss Reserves, Quiz 5	
11/22	Rate Making, HW Q9	Rate Making Homework, Q 1
11/24	Break	
11/29	Rate Making, HW Q10 & Quiz 6	Rate Making Homework, Questions 2-3
12/1	Miscellaneous P&C Topics	
12/6	Option Pricing	
12/8	Option Pricing	
12/14	Final	8:00 am to 10:00 am KRAN G002

In general, notes are “considered to be ‘derivative works’ of the instructor's presentations and materials, and they are thus subject to the instructor's copyright in such presentations and materials.” I consider class notes, tests, and quizzes to be derivative works and therefore copyrighted. Class notes, tests, and quizzes may not be sold, bartered, or even given to websites or other resources. Examples of such websites are Course Hero, Chegg, or Quizlet.

## **How to Succeed in this Course**

If you want to be a successful student:

- Be self-motivated and self-disciplined.
- Be willing to “speak up” if problems arise or you start to feel lost.
- Be willing and able to commit to 10 hours per week for this course.
- Complete all homework on time without help from your friends or solutions from past years.
- Study for the tests by working all the practice questions or questions from past tests.
- Attend class.
- Actively participate in and understand the group projects.
- Familiarize yourself with Brightspace. Check your grades in Brightspace on a regular basis.

In contrast, here are some common behaviors that lead to failing the course.

- Wait until the last day to begin assignments.
- Only study for a test the night before.
- When you are working old test or practice questions, you look at the solutions prior to completing your work.
- Not meeting deadlines.
- Ignore emails from the instructor.
- Don’t get familiar with the grade book and syllabus.

## **Nondiscrimination Statement**

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life.

## **Mental Health Statement**

**If you find yourself beginning to feel some stress, anxiety and/or feeling slightly overwhelmed, try [WellTrack](#).** Sign in and find information and tools at your fingertips, available to you at any time.

**If you need support and information about options and resources,** please contact or see the [Office of the Dean of Students](#). Normal drop-in hours are M-F, 8 am- 5 pm.

Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) at (765)494-6995 and <http://www.purdue.edu/caps/> during and after hours, on weekends and holidays, or through its counselors physically located in the Purdue University Student Health Center (PUSH) during business hours.

## **Emergency Preparation**

A link to Purdue's Emergency Preparedness resources is:

[https://www.purdue.edu/ehps/emergency\\_preparedness/](https://www.purdue.edu/ehps/emergency_preparedness/)

You are strongly encourage to review these procedures.

There are emergency procedures outlined in the attachment.

## **Violent Behavior Policy**

Purdue University is committed to providing a safe and secure campus environment for members of the university community. Purdue strives to create an educational environment for students and a work environment for employees that promote educational and career goals. Violent Behavior impedes such goals. Therefore, Violent Behavior is prohibited in or on any University Facility or while participating in any university activity. See our course Brightspace under University Policies for a link to the full Violent Behavior Policy.

## **Diversity & Inclusion Statement**

In our discussions, structured and unstructured, we will explore a variety of challenging issues, which can help us enhance our understanding of different experiences and perspectives. This can be challenging, but in overcoming these challenges we find the greatest rewards. While we will design guidelines as a group, everyone should remember the following points:

- We are all in the process of learning about others and their experiences. Please speak with me, anonymously if needed, if something has made you uncomfortable.
- Intention and impact are not always aligned, and we should respect the impact something may have on someone even if it was not the speaker's intention.
- We all come to the class with a variety of experiences and a range of expertise, we should respect these in others while critically examining them in ourselves.

## **Basic Needs Security**

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. There is no appointment needed and Student Support Services is available to serve students from 8:00 – 5:00, Monday through Friday. Considering the significant disruptions caused by the current global crisis as it related to COVID-19, students may submit requests for emergency funds. Click [here](#) for details and the request form.