Term Information

Effective Term	Autumn 2020
Previous Value	*Summer 2012*

Course Change Information

What change is being proposed? (If more than one, what changes are being proposed?)

Add DL designation.

What is the rationale for the proposed change(s)?

An online version of this course has been developed and piloted. Formal DL designation is being sought.

What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

None

Is approval of the requrest contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

General Information

Course Bulletin Listing/Subject Area	Mathematics
Fiscal Unit/Academic Org	Mathematics - D0671
College/Academic Group	Arts and Sciences
Level/Career	Graduate, Undergraduate
Course Number/Catalog	5633
Course Title	Loss Models I
Transcript Abbreviation	Loss Models 1
Course Description	Introduction to the construction and evaluation of actuarial models, with topics covered by examinations of the Society of Actuaries and the Casualty Actuarial Society.
Semester Credit Hours/Units	Fixed: 3

Offering Information

Length Of Course	14 Week, 12 Week
Flexibly Scheduled Course	Never
Does any section of this course have a distance education component?	Yes
Is any section of the course offered	100% at a distance
Previous Value	*No*
Grading Basis	Letter Grade
Repeatable	No
Course Components	Lecture
Grade Roster Component	Lecture
Credit Available by Exam	No
Admission Condition Course	No
Off Campus	Never
Campus of Offering	Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites	Either a C- or better in Stat 4202 or credit for Stat 421; and either a C- or better in 4530, 5530H, or Stat 4201 or credit for 530, 531H, or Stat 420. Open only to actuarial science majors, and to MMS students specializing in Financial Math.
Exclusions	
Electronically Enforced	No

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code	27.0101
Subsidy Level	Doctoral Course
Intended Rank	Senior, Masters, Doctoral
Previous Value	*Senior, Masters*

Requirement/Elective Designation

Required for this unit's degrees, majors, and/or minors
The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Students understand measures of risk.
- Students understand aggregate loss models.

Previous Value

Content Topic List

- Measures of risk
- Characteristics of actuarial models
- Severity models
- Frequency models
- Aggregate loss models

Sought Concurrence No

Attachments

- Syllabus 5633.pdf: In person syllabus

  (Syllabus. Owner: Husen,William J)

- Syllabus 5633 Online.pdf: Online syllabus

  (Syllabus. Owner: Husen,William J)

- Math 5633 - DL Checklist.pdf: Distance learning checklist

  (Other Supporting Documentation. Owner: Husen,William J)

Comments

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Husen,William J	01/24/2020 02:28 PM	Submitted for Approval
Approved	Husen,William J	01/24/2020 02:28 PM	Unit Approval
Approved	Haddad,Deborah Moore	01/24/2020 05:10 PM	College Approval
Pending Approval	Jenkins,Mary Ellen Bigler Hanlin,Deborah Kay Oldroyd,Shelby Quinn Vankeerbergen,Bernadette Chantal	01/24/2020 05:10 PM	ASCCAO Approval

Math 5633: Loss Models I

Autumn Semester 2020 – The Ohio State University
Tuesday/Thursday 2:20pm-3:40pm

Lecturer: Dr. Bradley Waller

Office: Mathematics Building 210

Office Hours: Tuesday, Thursday 11:30am-12:30pm

Email: waller.44@osu.edu

Purpose: This course sequence is designed to give students an introduction to the construction and evaluation of actuarial models. In particular, students will understand measures of risk, characteristics of actuarial models, severity models, frequency models, and aggregate loss models. Additionally, this course will help actuary candidates prepare for the Society of Actuaries' (SOA) exam STAM .

Textbook: *Loss Models*, 4^{th} edition, by Klugman, Panjer and Willmot, published by Wiley, ISBN: 9781118315323

Assessment: Your course grade will be based on homework, group work, quizzes, and exams; it will be computed as follows:

Computation	Grades
Homework 15%	A $\geq$ 93
Group Work 15%	93$>$ A- $\geq$ 90
Quizzes (3) 20%	90$>$ B+ $\geq$ 87
Exams (2) 50%	87$>$ B $\geq$ 83
	83$>$ B- $\geq$ 80
	80$>$ C+ $\geq$ 77
	77$>$ C $\geq$ 73
	73$>$ C- $\geq$ 67
	67$>$ D $\geq$ 60
	60$>$ E

There will be no makeup exams given, or late homework accepted, without documentation of a medical emergency or university-excused absence, unless we have made arrangements in advance.

Homework: Assignments can be found on Carmen. Homework will be graded on completeness, correctness of your solution, presence/organization of supporting work, and proper use of notation/terminology. Correct answers with no supporting work will receive no credit; incorrect answers with work shown, on the other hand, will often receive partial credit.

Quizzes: There will be three quizzes. Each quiz will be approximately 35 minutes in length, and all have equal weight.

Exams: There will be two exams of equal weight: the first is on October 8^{th} and the second and the final on December 8^{th}. They will not be explicitly cumulative; however, being a mathematics course, older course content will be necessary to complete some problems.

Group Work Group work consists of three components: exam questions, a 2 page paper reviewing an article, and three worksheets distributed throughout the term.

Each person in a group will write one exam question (with a solution provided) on the group's assigned week. The questions should be related to content of the week, and every question should test for something different. Please work as a group on this! If two problems are too similar, the assignment will be treated as though a question were missing. You may use the textbook to inspire you; however, the question must be written by the group.

The paper will be a 2 page, double spaced review/summary of an article that I will provide for class.

The last bit of group work will be worksheets that your group will submit. There are three such worksheets, and each should be a little more difficult than a homework. They will also require using excel or other computer programs.

Corrections: In case there is an error in grading or tabulating, you need to write a short petition explaining your case. This petition must be stapled on top of the assignment and handed to me no later than one week after I have returned the assignment to the class.

Course Updates: Every now and then announcements to the entire course need to be made. These announcements will be made using the news feature on Carmen. It is your responsibility to check the news for this course. You can sign up for news item notifications so that you are aware of any such updates.

Calculator Policy: Only SOA approved calculators are allowed during exams. One of the goals of this course is to become proficient in the use of these calculators. You can find the list of approved calculators here.

Email Etiquette: Outside of class time, the primary means of communication between us will be email. Please treat any emails you send me as a professional correspondence. Your email should have a subject, a greeting, and some sort of signature.

Academic Misconduct: "It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-48.7). For additional information, see the Code of Student Conduct at http://studentlife.osu.edu/csc/."

Students with Disabilities: "Students with disabilities that have been certified by Student Life Disabilities Services (SLDS) will be appropriately accommodated and should inform the instructor as soon as possible of their needs. SLDS contact information: slds@osu.edu; 614-292-3307; 098 Baker Hall, 113 W. 12th Avenue."

Description	Readings (from Loss Models)
Unit 1: Introduction (2 weeks)	Chapters 1, 2, & 3
Unit 2: Continuous Actuarial Models (2 weeks)	Chapters 4 & 5
Unit 3: Discrete Actuarial Models (2 weeks)	Chapters 6 & 7
Exam 1: October 3rd	
Unit 4: Modifying Coverage (2 weeks)	Chapter 8
Unit 5: Aggregate Models (2 weeks)	Chapter 9
Exam 2: November 7th	
Unit 6: Statistics Review and Estimation of Empirical Data (2 weeks)	Chapters 10 & 11
Unit 7: Estimation of Modified Data (2 weeks)	Chapter 12
Final: December 3rd	

Math 5633: Loss Models I

Autumn Semester 2020 – The Ohio State University

Lecturer: Dr. Bradley Waller

Office: Mathematics Building 210

Office Hours: Tuesday 4-5pm in a Zoom meeting or by appointment.

Email: waller.44@osu.edu

Purpose: This course sequence is designed to give students an introduction to the construction and evaluation of actuarial models. In particular, students will understand measures of risk, characteristics of actuarial models, severity models, frequency models, and aggregate loss models. Additionally, this course will help actuary candidates prepare for the Society of Actuaries' (SOA) exam STAM .

Textbook: *Loss Models*, 4^{th} edition, by Klugman, Panjer and Willmot, published by Wiley, ISBN: 9781118315323

Assessment: Your course grade will be based on homework, group work, quizzes, and exams; it will be computed as follows:

Computation	Grades
Homework 15% Group Work 15% Mini-Exams (4) 20% Exams (2) 50%	A $\geq$ 93 93$>$ A- $\geq$ 90 90$>$ B+ $\geq$ 87 87$>$ B $\geq$ 83 83$>$ B- $\geq$ 80 80$>$ C+ $\geq$ 77 77$>$ C $\geq$ 73 73$>$ C- $\geq$ 67 67$>$ D $\geq$ 60 60$>$ E

There will be no makeup exams given, or late homework accepted, without documentation of a medical emergency or university-excused absence, unless we have made arrangements in advance.

Content Delivery: Since this course is online, there will be a large burden of learning on the individual. Under each part of the modules sections of Carmen, you will find lectures and multimedia. These contain the lecture slides for the part you are working on, and there are video examples with documents containing the work written out. In addition, reading from *Loss Models* is prescribed. There you will find another perspective on the course content. In addition to the slides, videos, and textbook, you can always visit me during my online Zoom office hours!

The documents posted before the video examples will be the most up to date of the course content. The videos will usually be up to date; however, due to the labor involved in recording and editing a video, there could be a lag in any video corrections.

Homework: Assignments can be found on Carmen's modules. Each assignment comes with problems that are suggested and problems that are due. The suggested problems are usually for extra practice; however, there are times where they will be necessary to complete a problem that is due. Those that are for practice will have solutions provided. You will only be assessed on the problems that are labeled problems due (PD). To submit an assignment, you take an online "quiz" by clicking on the homework assignment for that part of the course and clicking on"Take The Quiz." The assignment is graded immediately upon submission, and you get unlimited attempts before the due date. Each homework assignment is worth 10 points, and the lowest homework is dropped.

Group Work: You will be divided into groups of about 4 people. In 5 of the units, there will be graded discussions. Each group will have a questions author for a discussion. The author will write questions regarding the reading from an actuarial article of the lecturer's choosing. Each question will be in response to the lecturer's post that assigns the authorship and reading for the week. The remaining group members will each answer one of the questions posed by the author. The author will check the answers given, state whether or not the questions are correct, and provide correct answers within 72 hours of the deadline for the respondents. You will be expected to author questions once this semester. Authors earn up to 14 points for their questions, and respondents earn up to 4 points for their responses.

In addition to the readings, there are three worksheets assigned as group work throughout the semester. Each group will only submit one copy of their solutions to the worksheet, and each worksheet is worth 30 points.

Mini-Exams: There will be four online mini-exams. The first mini-exam is over the syllabus, and you will be required to take it to access the Unit 1 module. You will be given unlimited attempts at the first mini-exam. The remaining mini-exams are 40 minutes of multiple choice, numerical answer, and file upload questions. You will only have one opportunity to take these online mini-exams. In addition, you will need to submit a solution to one of your problems. You can do this using either your phone to take a high-resolution picture or using a scanner. Just make sure you allot the requisite time to complete this task!

After completion of the mini-exam, you must submit all your work in the mini-exam follow up assignment. Make sure to do this immediately following completion of your mini-exam (within 20 minutes). Included in your submission will be your name on every sheet for submission and labels for each problem. Ideally, you will scan all of your work as one document; however, this is not necessary. Failure to complete this portion of the mini-exam will result in a grade adjustment.

Exams: Exams will be given just as the mini-exams are given. The exams will have questions that are multiple choice, numerical response, and file submission. They consist of two parts. You may take a break in between parts. Once again, you must make sure to allot the requisite time to complete an upload.

After completion of the exam, you must submit all your work in the exam follow up assignment. Make sure to do this immediately following completion of your exam (within 20 minutes). Included in your submission will be your name on every sheet for submission and labels for each problem. Ideally, you will scan all of your work as one document; however, this is not necessary. Failure to complete this portion of the exam will result in a grade adjustment.

Exam Integrity: Due to the nature of this course, it is likely that you will take your mini-exams and exams at different times than other students. Please refrain from discussing your assignment until after the assignment closes to the course. Failure to do so will be considered academic misconduct.

Course Updates: Every now and then announcements to the entire course need to be made. These announcements will be made using the announcements feature on Carmen. It is your responsibility to check the news for this course. You can sign up for announcement notifications so that you are aware of any such updates. Additionally, questions that would benefit the whole class should be posted to the discussion titled "Course Q&A."

Course Technology: You will need a document camera or scanner for the homework assignments, mini-exams, and exams.

You may use any calculator you desire on all assignments.

For office hours, you will need to be able to communicate with me using Zoom. This means you will need access to a good internet connection. In addition, it would be advantageous if you also have access to a microphone on your computer. That way, you can ask me questions regarding course content. The alternative is to try to use the chat feature on Zoom; however, this is less efficient.

For help with your password, university e-mail, Carmen, or any other technology issues, questions, or requests, contact the OSU IT Service Dest. Standard support hours are available at `https://ocio.osu.edu/help/hours`, and support for urgent issues is available all hours.

- **Self-Service and Chat support:** `http://ocio.osu.edu/selfservice`
- **Phone:** 614-688-HELP (4357)
- **Email:** 8help@osu.edu
- **TDD:** 614-688-8743

Email Etiquette: Outside of class time, the primary means of communication between us will be email. Please treat any emails you send me as a professional correspondence. Your email should have a subject, a greeting, and some sort of signature. During weekdays, you can expect email replies from me within 24 hours of your message.

Advising: For help navigating this large university, you will find that you need advising. In addition, advisors can help you get information regarding accessing course materials to meet the needs of diverse learners. For more information, visit the university's advising website at `https://advising.osu.edu/`. In addition to advising services, OSU main campus students may find assistance at student academic services.

Copyright Disclaimer: "The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course."

Statement on Title IX: "Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at `http://titleix.osu.edu` or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at titleix@osu.edu."

Academic Misconduct: "It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-48.7). For additional information, see the Code of Student Conduct at `http://studentlife.osu.edu/csc/`."

Students with Disabilities: "Students with disabilities (including mental health, chronic or temporary medical conditions) that have been certified by the Office of Student Life Disabilities Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office of Student Life Disability Services is located in 098 Baker Hall 113 W. 12th Avenue; telephone 614-292-3307; slds@osu.edu; `slds.osu.edu`."

Accessibility of Course Technology: "This online course requires use of Carmen (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- Carmen (Canvas) accessibility
- Streaming audio and video
- Synchronous course tools"

Your Mental Health: "As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting `ccs.osu.edu` or calling 614- 292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273- TALK or at `suicidepreventionlifeline.org`."

Description	Readings (from Loss Models)
Unit 1: Introduction (2 weeks)	Chapters 1, 2, & 3
Unit 2: Continuous Actuarial Models (3 weeks)	Chapters 4 & 5
Unit 3: Discrete Actuarial Models (2 weeks)	Chapters 6 & 7
Unit 4: Modifying Coverage (2 weeks)	Chapter 8
Unit 5: Aggregate Models (2 weeks)	Chapter 9
Unit 6: Statistics Review and Estimation of Empirical Data (2 weeks)	Chapters 10 & 11
Unit 7: Estimation of Modified Data (2 weeks)	Chapter 12

Some Important Time Windows:

Mini-Exam 1 is available **online** right now! Take it and earn a maximum score before you can access the first module. Take it as many times as you need to so that you achieve the maximum score.

Mini-Exam 2 is available **online** August 29th at 12am-September 4th at 11:59pm.

Mini-Exam 3 is available **online** October 3rd at 12am-October 9th at 11:59pm.

The Midterm Exam is available **online** October 17th at 12am-October 23rd at 11:59pm.

Mini Exam 4 is available **online** October 31st at 12am-November 6th at 11:59pm.

The Final Exam is available **online** December 3rd at 12am-December 9th at 11:59pm.

Arts and Sciences Distance Learning Course Component Technical Review Checklist

Course: Math 5633
Instructor: Bradley Waller
Summary: Loss Models 1

Standard - Course Technology	Yes	Yes with Revisions	No	Feedback/ Recomm.
6.1 The tools used in the course support the learning objectives and competencies.	X			• Carmen • Office 365 • CarmenZoom
6.2 Course tools promote learner engagement and active learning.	X			• CarmenZoom • Carmen Quizzes
6.3 Technologies required in the course are readily obtainable.	X			All are available for free via OSU site license
6.4 The course technologies are current.	X			All are updated regularly.
6.5 Links are provided to privacy policies for all external tools required in the course.	X			No external tools are used
Standard - Learner Support				
7.1 The course instructions articulate or link to a clear description of the technical support offered and how to access it.	X			Links to 8HELP are provided.
7.2 Course instructions articulate or link to the institution's accessibility policies and services.	X			a
7.3 Course instructions articulate or link to an explanation of how the institution's academic support services and resources can help learners succeed in the course and how learners can obtain them.	X			b
7.4 Course instructions articulate or link to an explanation of how the institution's student services and resources can help learners succeed and how learners can obtain them.	X			C
Standard – Accessibility and Usability				
8.1 Course navigation facilitates ease of use.	X			Recommend using the Carmen Distance Learning "Master Course" template developed by ODEE and available in the Canvas Commons to provide student-users with a consistent user experience in terms of navigation and access to course content.
8.2 Information is provided about the accessibility of all technologies required in the course.	X			Accessibility links are provided for all tools.
8.3 The course provides alternative means of access to course materials in formats that meet the needs of diverse learners.	X			
8.4 The course design facilitates readability	X			Comes across like a wall of text. This could be solved by using the distance learning syllabus template.
8.5 Course multimedia facilitate ease of use.	X			All assignments and activities that use the Carmen LMS with embedded multimedia facilitates ease of use. All other multimedia resources facilitate ease of use by being available through a standard web browser

Reviewer Information

- Date reviewed: 11/26/19
- Reviewed by: Ian Anderson

Notes: Consider using the distance learning syllabus template. Please assign dates to the weekly breakdown.

[a]The following statement about disability services (recommended 16 point font): Students with disabilities (including mental health, chronic or temporary medical conditions) that have been certified by the Office of Student Life Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office of Student Life Disability Services is located in 098 Baker Hall, 113 W. 12th Avenue; telephone 614- 292-3307, slds@osu.edu; slds.osu.edu.

[b]Add to the syllabus this link with an overview and contact information for the student academic services offered on the OSU main campus. http://advising.osu.edu/welcome.shtml

[c]Add to the syllabus this link with an overview and contact information for student services offered on the OSU main campus. http://ssc.osu.edu. Also, consider including this link in the “Other Course Policies” section of the syllabus.