The University of Iowa
College of Liberal Arts and Sciences

Department of Statistics and Actuarial Science
Statistics for Risk Modeling I (STAT:4560)
Fall 2025
`STAT:4560:001`, 11:30 - 12:20 PM, M/W/F, 65 VAN

▷ *General Information*

- *Instructor:* Max Sampson, 368 Schaeffer Hall, `max-sampson@uiowa.edu`
- *Office Hours:* M/W/F 10:30-11:30, and by appointment
- *DEO:* Kung-Sik Chan, 241 SH
- *Textbook I:* Regression Modeling with Actuarial and Financial Applications, Edward W. Frees, 2010, New York: Cambridge. ISBN: 978-0521135962.
- *Textbook II:* An Introduction to Statistical Learning, with Applications in R, James, Witten, Hastie, Tibshirani, 2021, New York: Springer.
- *ICON/Web:* This course will use ICON (`https://icon.uiowa.edu`) for grades, announcements, homework assignments, etc.

▷ ***Course Description, Objectives, & Outcomes*** This course introduces statistical learning, linear regression, cross-validation, variable selection, regularization, generalized linear models, and some actuarial applications of these models. Prerequisite: STAT:4100 Mathematical Statistics I and STAT:4101 Mathematical Statistics II or equivalents with a minimum grade of C+.

This course together with STAT:4561 is approved by the SOA UEC program for the SOA exam Statistics for Risk Modeling (SRM). This course addresses the first, second, and part of the fifth learning objectives of Exam SRM. STAT:4561 complements this by covering the remaining objectives of the exam.

Selected chapters from Textbook I (Chapters 2, 3, 5, 6, 11, 12, and 13) and Textbook II (Chapters 2, 3, 5, and 6) will be covered. These materials align with objectives 1, 2, 5a, and 5b outlined in the SOA Exam SRM syllabus.

▷ ***Course Organization***

- **Lectures.** The 50-minute in-person meetings on Monday, Wednesday, and Friday will be used to introduce important concepts, give a running summary of the material, work through examples as a class, and work through examples individually or in small groups. Students will be expected to come prepared and to participate in the worked examples. To be better prepared for lectures, students are strongly encouraged to look over the relevant material before class.
- **Attendance.** Attendance is required. Students must attend all lectures.
- **Quizzes.** Four quizzes will be given on Friday in class. The lowest quiz score will be dropped. No make-up quizzes will be provided.
- **Homework.** Assignments are due on ICON each Friday by 5 PM. Submissions must be neat, correctly ordered, and uploaded as a single file. Homework may include textbook problems, instructor-created questions, and coding exercises. The lowest two homework scores will be dropped. Late or improperly formatted submissions will not receive credit. Students are encouraged to collaborate, but must submit their own work.
- **Exams.** There will be one midterm (the week of October 13th) and one final exam. All exams will be in person. The first will take place during the normal lecture time. The final exam is cumulative and will take place during our scheduled final exam time during the week of December 15th. All exams are closed book and closed notes; no crib sheets will be allowed.

▷ **Course Topics** A tentative course schedule can be found on the course ICON site.

▷ **Exams**

There will be one in class midterm exam and a final exam. Exam dates:

– Midterm: Week of October 13th.
– Final Exam: TBA, announced by the Registrar during the fifth week of classes.

Students are expected to be present for the exams at the *scheduled time*. It is your responsibility to make the appropriate arrangements *beforehand*. The policy for missed exams is the same as the policy outlined by the College of Liberal Arts and Sciences. Exams may be made up for

– Illness. Visits to Student Health are free for current UIowa students. A note from Student Health or documentation from MyChart would be helpful to prove an illness occurred on the day of an examination.
– Religious holy days.
– Military service obligations.
– University-sponsored activities.

▷ **University Grading**

– *Exams:* 65% total
  * Midterm: 25% total
  * Final Exam: 40% total
– *Quizzes:* 15% total; the lowest quiz score will be dropped for grading purposes. Therefore, missed quizzes cannot be made up for any reason. Quizzes will be given in class, typically on Friday of the quiz week.
– *Homework:* 20% total; The assignments will generally be assigned on Friday and are expected to be turned in Friday of the following week. Assignments need to be scanned and uploaded on ICON. Late assignments will not be accepted. The two lowest scores will be dropped for both university grading and UEC grading.
– This course uses the $+/-$ grading system (i.e. grades such as `A-` (`[90-93)`), `B+` (`[87-90)`), and `B` (`[83-87)`) will be assigned).
– Bonus points may be given at any time. The bonus points may be applied to any part of your grade.
– Once work is returned, students have 7 calendar days to review their scores and discuss any questions or concerns with the instructor.

▷ **SOA UEC Grading**

To determine the UEC score, the performance on this course's and STAT:4561's final and assignments will be taken into account. In each course, the final comprises 80% of its UEC score, and assignments comprises the remaining 20%. A minimum UEC score of 85% is required in each of STAT:4560 and STAT:4561 to obtain the UEC for SOA Exam SRM.

▷ **Academic Misconduct**

– During exams, you may not talk, whisper, pass notes, view other students' work, allow a fellow student to view your own work (cover your paper), communicate with a fellow student in any way, use a cell phone, use class notes, etc.
– Directly copying solutions from online resources (e.g. Chegg, ChatGPT, etc) is considered cheating.
– Simply copying a another student's homework will be considered academic misconduct.
– All academic misconduct will receive the following sanctions:
  * You will receive a 0 on the exam/quiz/homework on which the academic misconduct took place.
  * A report will be filed with the College of Liberal Arts and Sciences
  * Your final grade will be lowered by 2 full letter grades (e.g., from a B+ to a D+).

▷ **Artificial Intelligence (AI) Policy**

Students can use large language models (e.g., ChatGPT, Copilot, Gemini, etc) as a guide, or for help, but should remember that the information received is not necessarily correct. Directly copying from these sources will be considered academic misconduct.

▷ **General Notes**

– If you decide to communicate via email, make sure you are proper email etiquette. See here for a checklist:
  `https://drexel.edu/graduatecollege/professional-development/blog/2018/October/12-tips-for-writing-`

– Do <u>not</u> miss class. Attendance is necessary for success.

– Refrain from talking, eating, using your phone, wearing earbuds, and using other electronic devices in class.

– Work a lot of practice problems. *Frequently quizzing/testing yourself is the best, most efficient way to learn the material.* Don't memorize; try to understand.

▷ **Student Complaints**

Students with a complaint about a grade or a related matter should first discuss the situation with the instructor, and finally with the Director or Chair of the school, department, or program offering the course.

Undergraduate students should contact CLAS Undergraduate Programs for support when the matter is not resolved at the previous level. aduate students should contact the CLAS Graduate Affairs Manager when additional support is needed.

▷ **Accommodations for Students with Disabilities**

The University is committed to providing an educational experience that is accessible to all students. If a student has a diagnosed disability or other disabling condition that may impact the student's ability to complete the course requirements as stated in the syllabus, the student may seek accommodations through Student Disability Services (SDS). SDS is responsible for making Letters of Accommodation (LOA) available to the student. The student must provide an LOA to the instructor as early in the semester as possible, but requests not made at least two weeks prior to the scheduled activity for which an accommodation is sought may not be accommodated. The LOA will specify what reasonable course accommodations the student is eligible for and those the instructor should provide. Additional information can be found on the SDS website.

▷ **Drop Deadline for this Course**

You may drop an individual course before the deadline; after this deadline you will need collegiate approval. You can look up the drop deadline for this course here. When you drop a course, a "W" will appear on your transcript. The mark of "W" is a neutral mark that does not affect your GPA. Directions for adding or dropping a course and other registration changes can be found on the Registrar's website. Undergraduate students can find policies on dropping and withdrawing here. Graduate students should adhere to the academic deadlines and policies set by the Graduate College.

▷ **Conflict Resolution** The Office of the Ombudsperson is a confidential, impartial, informal, and independent resource for any member of the university community with a problem or concern. The Office of the Ombudsperson offers a safe place to discuss conflicts or concerns. Students are encouraged to reach out for assistance. The office will brainstorm with students to help identify options, answer any questions, and provide referrals to other offices as appropriate. More information about the Office of the Ombudsperson, including how to schedule an appointment, can be found at ombudsperson.org.uiowa.edu.

▷ **The College of Liberal Arts and Sciences Policy and Procedures (Hyperlinks)**

– Basic Needs and Support for Students
– Classroom Expectations
– Exam Make-up Owing to Absence
– Free Speech and Expression
– Mental Health
– Military Service Obligations
– Non-discrimination
– Religious Holy Days
– Sexual Harassment/Misconduct and Supportive Measures
– Class Recordings