

STAT 3100 (Section 1): Introduction to Mathematical Statistics I

Fall 2021

10:30 a.m. – 11:20 a.m. Mondays, Wednesdays, and Fridays in S301 LC

Instructor:	Sanvesh Srivastava
Email:	sanvesh-srivastava@uiowa.edu
Office:	219 SH (Schaeffer Hall)
Office hours:	Mondays, Wednesdays, and Fridays from 3:30 p.m. – 4:30 p.m. face-to-face or via Zoom
Website:	Canvas https://uiowa.instructure.com/
Lectures:	10:30 a.m. – 11:20 a.m. MWF in S301 LC.

Departmental Information and Executive Officer

College: College of Liberal Arts and Sciences

Department: Statistics and Actuarial Science

Executive Officer: Kung-Sik Chan (kung-sik-chan@uiowa.edu)

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Website: <http://www.stat.uiowa.edu>

Textbook and course materials

Probability and Statistical Inference, Tenth Edition by Hogg, Tanis, and Zimmerman.

The instructor will post announcements, homework problems, lecture notes, and other course information in Canvas.

Course Description and Objectives

This course introduces the following topics: probability, discrete distributions, continuous distributions, bivariate distributions, and distributions of functions of random variables. These topics form the bulk of the contents in Chapters 1, 2, 3, 4, and 5 of the textbook.

The students will develop an understanding of elementary concepts in probability and statistics that will prepare them for taking advanced classes in statistical inference, including STAT 4100 and STAT 4101.

It is expected that students will read the book, work on the homework problems as required to master the material, and spend time in solving additional textbook problems for an improved understanding. You are expected to put in 6-8 hours of work outside of class. A few of you will do well with less time than this, and a few of you will need more.

Pre-requisites

This class requires you to have an understanding of the materials covered in **MATH:1860** or **MATH:1560**. Familiarity with calculus is required.

If you'd like to have some extra preparation for this class, then I encourage all of you to consider the following option:

All Actuarial Science Interest majors registered for STAT:3100 should also be taking the preparatory course; all other students in STAT:3100 are welcome to attend the first few meetings to decide if they would like to participate. The course is ACTS:3110 and meets 6:30 p.m. – 7:20 p.m. on Mondays in 150 SH. The ACTS:3110 course instructor will cover the same material as STAT:3100 and in the same order, so the class will benefit all STAT:3100 students. The first class meeting is a review of pre-requisite topics including double integrals. I encourage all students in the STAT 3100 class to attend ACTS:3110.

Attendance

Attending classes is required, but the instructor won't take attendance.

Office hours

The instructor *is available for in-person office hours* every Monday, Wednesday, and Friday from 3:30 p.m. – 4:30 p.m. in SH 219.

The instructor *is available for office hours via Zoom*. A student is required to email the instructor about scheduling the meetings and give the instructor sufficient time to respond. *A student can also schedule the meeting before or after the lecture but not during the lecture*. The available slots for scheduling the office hour meetings are every Monday, Wednesday, and Friday from 3:30 p.m. – 4:30 p.m. If you are unable during these times, then you should email the instructor for an appointment and suggest a set of time slots that suit you. *You should email early enough so that the instructor has enough time to schedule a meeting*.

The *zoom link* for all the *personal meetings for office hours* is <https://uiowa.zoom.us/j/4107308187>.

Grades

Your grade will consist of Homework (30%), Quizzes (10%), Midterm I (15%), Midterm II (15%) and a Final Exam (30%). At the end of the semester, HW, Quizzes, Midterm I and II, and Final grades will be normalized within each category in order to calculate the final course grade. Specifically, your final numerical grade percentage is calculated using the following formula

$$0.30 \text{ HW } \% + 0.10 \text{ Quiz } \% + 0.15 \text{ Midterm 1 } \% + 0.15 \text{ Midterm 2 } \% + 0.30 \text{ Final } \%$$

All the quizzes and midterm exams will be conducted in class. Specifically, the duration of quizzes and midterms will be 15 and 50 minutes, respectively. The duration of the final exam will be 2 hours, and the timing is decided by the university administration.

A *plus-minus* grading system will be used. Here is a *tentative grading scale*: A,A-: 88%–100%, B+,B,B-: 72%–88%, C+,C,C-: 55%–72%, D: 40%–55%, F:<40%. A+ will be given only in exceptional cases. I reserve the right to change the grade distribution by 10% so that it suits the diversity of students in the class.

Homework

I plan to assign seven to eight homework in this class. They will be usually assigned on Fridays and will be due a week later on Friday. Homework submission will be online and the students are expected to upload a scanned (or typed) copy of their homework. Your work and its scanned (or typed) copy must be legible and include your name at the top to receive credit. Any exceptions will be announced in class or in Canvas. Due to time constraints, the grader may grade only some of the assigned questions, but you are responsible for understanding all questions. Homework will be usually assigned each week on Fridays and will be due on the following Friday at the beginning of the class. Any exceptions will be announced in class or on Canvas. Due to time constraints, the grader may grade only some of the assigned questions, but you are responsible for understanding all questions.

All homeworks will contribute towards your final grade. Unless prior arrangements are made well in advance, for reasons judged to be acceptable by me, late homework will receive zero credit as solutions will be posted soon after the homework is due.

Quizzes and Exams

We will (tentatively) have four to five announced quizzes in class. They will emphasize examples and key concepts repeatedly mentioned in class and in homework problems. There will be two midterms and one final exam. The final exam will be comprehensive and cumulative. All exams will be closed book. You will be allowed *one* A4-sized handwritten “cheat-sheet” in the exams but not in the quizzes.

Grading Errors

Although every effort will be made to mark your work accurately, sometimes grading mistakes happen. If you believe that an error has been made on an in-class problem or exam, return the paper to the instructor immediately, stating your claim in writing.

Important Dates

Check the office of the registrar website for the academic calendar:

<https://registrar.uiowa.edu/academic-calendar#!fall-2021>

Some important **tentative** dates for STAT 3100 are as follows:

Midterm I:	Mon, Oct 4
Midterm II:	Mon, Nov 8
Final Exam:	Mon, Dec 13 – Fri, Dec 17 (to be decided by the university)

Tentative Schedule

Chapters	Week	Comments
1	08/23 – 08/27	Introduction & Probability
1	08/30 – 09/03	
2	09/06 – 09/10	Discrete Distributions
2	09/13 – 09/17	
2	09/20 – 09/24	
3	09/27 – 10/01	Continuous Distributions
3	10/04 – 10/08	Midterm 1 (Chapters 1 and 2)
4	10/11 – 10/15	Bivariate Distributions
4	10/18 – 10/22	
4	10/25 – 10/29	
5	11/01 – 11/05	Distributions of Functions of Random Variables
5	11/08 – 11/12	Midterm 2 (Chapters 3 and 4)
5	11/15 – 11/19	
	11/22 – 11/26	Thanksgiving break
5	11/29 – 12/03	
5	12/06 – 12/10	
	12/13 – 12/17	Final Exam

UI and the College of Liberal Arts and Sciences Information for Undergraduate/Graduate Students

Absences and Attendance

Students are responsible for attending class and for contributing to the learning environment of a course. Students are also responsible for knowing their course absence policies, which will vary by instructor. All absence policies, however, must uphold the UI policy related to student illness, mandatory religious obligations, including Holy Day obligations, military service obligations, unavoidable circumstances, or University authorized activities. Students may use the CLAS absence form to aid communication with the instructor who will decide if the absence is excused or unexcused. The form is on ICON in the top banner under “Student Tools.” More information is at <https://clas.uiowa.edu/students/handbook/attendance-absences>.

Academic Integrity

All undergraduates enrolled in courses offered by CLAS have, in essence, agreed to the College’s Code of Academic Honesty. Misconduct is reported to the College, resulting in suspension or other sanctions, with sanctions communicated with the student through UI email. Visit this page for information: <https://clas.uiowa.edu/students/handbook/academic-fraud-honor-code>.

Accommodations for Disabilities

UI is committed to an educational experience that is accessible to all students. A student may request academic accommodations for a disability (such as mental health, attention, learning, vision, and physical or health-related condition) by registering with Student Disability Services (SDS). The student is then responsible for discussing specific accommodations with the instructor. More information is at <https://sds.studentlife.uiowa.edu/>.

Administrative Home of the Course

The College of Liberal Arts and Sciences (CLAS) is the administrative home of this course and governs its add/drop deadlines, the second-grade-only option, and related policies. Other colleges may have different policies. CLAS policies may be found here: <https://clas.uiowa.edu/students/handbook>.

Class Behavioral Expectations

Students are expected to comply with University policies regarding appropriate classroom behavior as outlined in the Code of Student Life. This includes the policies and procedures that all students have agreed to regarding the Steps Forward for Fall 2021 in response to the COVID-19 pandemic. In the event that a student disrupts the classroom environment through their failure to comply with the reasonable directive of an instructor or the University, the instructor has the authority to ask that the student immediately leave the space for the remainder of the class period. Additionally, the instructor is asked to report the incident to the Office of Student Accountability for the possibility of additional follow-up. Students who need a temporary alternative learning arrangement related to COVID-19 expectations should contact Student Disability Services (<https://sds.studentlife.uiowa.edu/fall-2020/covid-19-temporary-learning-arrangements/>; +1 319 335-1462)

Class Recordings: Privacy and Sharing

Some sessions of a course could be recorded or live-streamed. Such a recording or streaming will only be available to students registered for the course. These recordings are the intellectual property of the faculty, and they may not be shared or reproduced without the explicit **written** consent of the faculty member. Students may not share these sessions with those not in the class; likewise, students may not upload recordings to any other online environment. Doing so is a breach of the Code of Student Conduct and, in some cases, a violation of the Federal Education Rights and Privacy Act (FERPA).

Communication and the Required Use of UI Email

Students are responsible for official correspondences sent to their UI email address (uiowa.edu) and must use this address for all communication within UI (Operations Manual, III.15.2).

Complaints

Students with a complaint about an academic issue should first visit with the instructor or course supervisor and then with the Chair of the department or program offering the course; students may next bring the issue to the College of Liberal Arts and Sciences; see this page for more information: <https://clas.uiowa.edu/students/handbook/student-rights-responsibilities>.

Final Examination Policies

The final exam schedule is announced around the fifth week of classes; students are responsible for knowing the date, time, and place of a final exam. Students should not make travel plans until knowing this information. No exams of any kind are allowed the week before finals with very few exceptions made (for labs, ESL and some world language courses, and off-cycle courses): <https://registrar.uiowa.edu/final-examination-scheduling-policies>.

Nondiscrimination in the Classroom

The University of Iowa is committed to making the classroom a respectful and inclusive space for people of all gender, sexual, racial, religious, and other identities. Toward this goal, students are invited in MyUI to optionally share the names and pronouns they would like their instructors and advisors to use to address them. The University of Iowa prohibits discrimination and harassment against individuals on the basis of race, class, gender, sexual orientation, national origin, and other identity categories set forth in the University's Human Rights policy. For more information, contact the Office of Equal Opportunity and Diversity (<https://diversity.uiowa.edu/eod>; +1 319 335-0705).

Sexual Harassment

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community must uphold the UI mission and contribute to a safe environment that enhances learning. Incidents of sexual harassment must be reported immediately. For assistance, please see <https://osmrc.uiowa.edu/>.