

STAT:4100 (0001) Fall 2021

Mathematical Statistics I

Lectures MWF 8:30 AM – 9:20 AM
W228 CB (face-to-face mode)

Instructor Boxiang Wang, 261 SH, boxiang-wang@uiowa.edu
Office Hours Th 10:00 AM – 1:00 PM, or by appointment.
Teaching Assistant Shamriddha De, shamriddha-de@uiowa.edu

Course Website. Announcements, homework problems, lecture notes, and other course information are posted in ICON <http://icon.uiowa.edu>.

Course Schedule.

<https://docs.google.com/spreadsheets/d/1cbXx5iYLTM-D8DV9MAj7NVfAXCOWAQE7pbATW0E0JQ0/edit?usp=sharing>

Course Description and Objectives.

This is a course in mathematical statistics intended for upper-level undergraduate students in the mathematical sciences as well as for graduate students in all disciplines. The goal is to provide a solid foundation in the theory of random variables and probability distributions.

Prerequisites.

The course prerequisites are the mathematics courses MATH:2700 and MATH:2850, or equivalents: undergraduate calculus including linear algebra. Undergraduate students often complete STAT:3120 or STAT:3100 prior to taking STAT:4100.

Textbook.

Introduction to Mathematical Statistics (7th or 8th ed.) Hogg, McKean and Craig, (Prentice Hall). We will cover chapters 1-3 and part of chapter 4.

There is no major difference between the 7th and 8th editions, and homework is assigned based on the 7th edition.

Software.

The software R will be used in this class to produce graphs and conduct small simulations to corroborate theoretical results, while programming is not required in any quiz or exam. R can be freely downloaded at <https://mirror.las.iastate.edu/CRAN>.

Online Office Hours.

The office hours are held between 10 am and 1 pm every Thursday. Reserve your slot using the following google sheet and send me a zoom link before the scheduled time.

<https://docs.google.com/spreadsheets/d/1I4dUIErEgweMITzSmVooVJXYZ857zImzQb84qae3dMQ/edit?usp=sharing>

You may use your first name or simply write “Reserved” to reserve a time slot. You can reserve consecutive slots if you want to request more than 15 minutes.

Homework.

Homework is weekly and due 12:01 AM every Friday and must be submitted **online**. Late homework may be accepted if it is submitted by 8:30 AM on the same day but not accepted from the time onward. The lowest homework will be dropped. To avoid grading penalty, place a box around each final numerical answer, show all important steps in your reasoning. Each homework is graded based on a three-point scale.

If you write your homework by hand, take pictures or preferably scan your homework, and **must combine them into a single PDF**. The homework won't be graded if it is submitted in formats other than PDF. If multiple files are submitted, only the first file will be graded.

Quizzes and Exams.

There are five biweekly 25-minute quizzes, one midterm and one final exam. All the quizzes and exams are in-person. No late quiz or exam is accepted.

All the quizzes are closed-book and you are allowed to bring one page (letter sized) of white paper in the midterm and the final exam. The quizzes will be held on Mondays from 8:55 AM to 9:20 AM. You are allowed to drop the lowest quiz.

The midterm will be held from 6:30 PM to 8:30 PM on Oct 27 in 40 SH. The schedule of the final exam is to be determined by the university. You have two weeks to request a change if exam conflicts exist or if you have more than two exams in one day.

You must take exams as scheduled except in cases of officially university-approved absence such as class conflict with official exam time, illness, religious observance, and NCAA athletic competition. Makeup exams are not available for other reasons, including student org field trips, club competitions, job interviews, and personal events. An online option may be provided due to extenuating circumstances.

No make up exam for the midterm. If you miss the midterm due to legitimate reasons, your grade of final exam will be used as the grade of your missed exam. If you miss your final exam, the make-up exam will be scheduled next semester.

Grading.

Your semester grade will consist of the following components:

Homework	20%	
Quizzes	30%	
Midterm Exam	20%	Oct 27
Final Exam	30%	TBD
<hr/>		
Total	100%	

As a **rough** guide, **A,A-** = 90% – 100%, **B+,B,B-** = 80% – 90%, **C+,C,C-** = 70% – 80%, **D+,D,D-** = 60% – 70%. The lowest homework and the lowest quiz will be dropped.

Attendance.

Attendance is required. See instruction for Absence from Class due to illness, emergence, or extenuating circumstances in <https://registrar.uiowa.edu/absence-class> .

See COVID-related questions in <https://coronavirus.uiowa.edu/>.

A student who is absent for more than five days or miss an exam due to an emergency or an illness may request the UI Service Center, 17 Calvin Hall, registrar@uiowa.edu, to notify me of the reason for the absence.

“Incomplete” Grades.

A grade of “Incomplete” will only be given under extraordinarily extenuating circumstances that prevent the student from completing the course requirements. Having a failing grade in the course is not an extraordinarily extenuating circumstance.

Copyright.

The lectures, slides, homework, quiz and exam questions are for use only by students attending STAT:4100 (0001). It is illegal to share with anyone else the course materials without instructor’s permission.

Department of Statistics and Actuarial Science.

241 SH, <http://www.stat.uiowa.edu>

Professor Kung-Sik Chan, DEO, 335-0712, kung-sik-chan@uiowa.edu

College of Liberal Arts and Sciences: Information for Undergraduates

Attendance and Classroom Expectations.

Students are responsible for attending class and for knowing an instructor’s attendance policies, which vary by course and content area. All students are expected to attend class and to contribute to its learning environment in part by complying with University policies and directives regarding appropriate classroom behavior or other matters.

Absences.

Students are responsible for communicating with instructors as soon they know that an absence might occur or as soon as possible in the case of an illness or an unavoidable

circumstance. Students can use the CLAS absence form to help communicate with instructors who will decide if the absence is excused or unexcused; the form is located on ICON within the top banner under "Student Tools." Delays by students in communication with an instructor could result in a forfeit of what otherwise might be an excused absence (<https://clas.uiowa.edu/students/handbook/attendance-absences>).

Absences: Illness, Unavoidable Circumstances, and University Sponsored Activities.

Students who are ill, in an unavoidable circumstance affecting academic work, or who miss class because of a University sponsored activity are allowed by UI policy to make up a missed exam. Documentation is required by the instructor except in the case of a brief illness. Students are responsible for communicating with instructors as soon as the absence is known (<https://opsmanual.uiowa.edu/students/absences-class#8.1>).

Absences: Holy Days.

Reasonable accommodations are allowed for students whose religious holy days coincide with their classroom assignments, tests, and attendance if the student notifies the instructor in writing of any such religious Holy Day conflicts within the first days of the semester and no later than the third week. (See the UI Operations Manual, <https://opsmanual.uiowa.edu/students/absences-class#8.2>).

Absences: Military Service Obligations.

Students absent from class due to U.S. veteran or U.S. military service obligations (including military service-related medical appointments, military orders, and National Guard Service obligations) must be excused without penalty. Instructors must make reasonable accommodations to allow students to make-up exams or other work. Students must communicate with their instructors about the expected possibility of missing class as soon as possible. (For more information, see <https://opsmanual.uiowa.edu/iv-8-absences-class#C2%A0-0>).

Academic Misconduct.

All undergraduates enrolled in courses offered by CLAS have in essence agreed to the College's Code of Academic Honesty. Academic misconduct affects a student's grade and is reported to the College which applies an additional sanction, such as suspension. Outcomes about misconduct are communicated through UI email (<https://clas.uiowa.edu/students/handbook/academic-fraud-honor-code>).

Academic Accommodations for Students with Disabilities.

UI is committed to providing an educational experience that is accessible to all students. A student may request academic accommodations for a disability (such as a mental health, attention, learning, vision, and a physical or health-related condition) through the Student Disability Services (SDS) office. The student is responsible for discussing specific accommodations with the instructor. Note that accommodations are not granted retroactively but from the time of the student's request to the in-

structor onward; additionally, accommodations must be requested at least two weeks in advance of the related assignment or exam (<https://sds.studentlife.uiowa.edu/>).

Class Recordings: Privacy and Sharing.

Course lectures and discussions are sometimes recorded or live-streamed. These are only available to students registered for the course and the intellectual property of the faculty member. These materials may not be shared or reproduced without the explicit written consent of the instructors. Students may not share these recordings with those who are not enrolled in the course; likewise, students may not upload recordings to any other online environment. Doing so is a breach of the Code of Student Conduct and could be a violation of the Federal Education Rights and Privacy Act (FERPA); also see <https://dos.uiowa.edu/policies/code-of-student-life/>.

Communication: UI email.

Students are responsible for all official correspondences sent to their UI email address (uiowa.edu) and must use this address for any communication with instructors or staff in the UI community (Operations Manual, III.15.2). Emails should be respectful and brief, with complex matters addressed during the instructor's drop-in hours, for example. Faculty are not expected to answer email after business hours or during the weekends.

Complaints About Academic Matters.

Students with a complaint about a grade or a related academic issue should first visit with the instructor and then with the course supervisor (if one is assigned), and next with the Chair of the department or program offering the course. If not resolved, students may bring their concerns to the College of Liberal Arts and Sciences: <https://clas.uiowa.edu/students/handbook/student-rights-responsibilities>.

Final Examination Policies.

The final exam schedule is published during the fifth week of the fall and spring semesters or on the first day of summer classes; students are responsible for knowing the date, time, and place of their final exams. Students should not make travel plans until knowing this information. A student with exams scheduled on the same day and time or who have more than two final exams on the same day should visit this page for how to resolve these problems by the given deadline: <https://registrar.uiowa.edu/makeup-final-examination-policies>.

No exams may be scheduled the week before finals; some exception, however, have been made for labs, language courses, and off-cycle courses (<https://registrar.uiowa.edu/final-examination-scheduling-policies>).

Free Speech and Expression.

The University of Iowa supports and upholds the First Amendment protection of freedom of speech and the principles of academic and artistic freedom. We are committed to open inquiry, vigorous debate, and creative expression inside and outside of the classroom. Visit Free Speech at Iowa for more information on the Univer-

sity's policies on free speech and academic freedom (<https://freespeech.uiowa.edu/>).

Home of the Course.

The College of Liberal Arts and Sciences (CLAS) is the home of this course, and CLAS governs the course's add and drop deadlines, the "second-grade only" option (SG0), and other undergraduate policies and procedures. Different UI colleges may have other policies or deadlines. See <https://clas.uiowa.edu/students/handbook>. Questions? Contact CLAS at clasps@uiowa.edu or 319-335-2633.

Mental Health.

Students are encouraged to seek help as a preventive measure or if feeling stressed or overwhelmed. Students should talk to their instructors for guidance with specific class-related concerns and are encouraged to contact University Counseling Service (UCS) at 319-335-7294 during regular business hours to schedule an appointment. USC offers group and individual therapy as well as counseling for couples about relationships while making referrals to other resources (<https://counseling.uiowa.edu/>). Student Health can also address related concerns (<https://studenthealth.uiowa.edu/>). These visits are free to students. After hours, students are encouraged to call the Johnson County Community Crisis Line at (319) 351-0140 or dial 911 in an emergency.

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 based on race, class, gender, sexual orientation, national origin, and other identity categories indicated by the University's Human Rights policy. Contact the Office of Equal Opportunity and Diversity at <https://diversity.uiowa.edu/division/office-equal-opportunity-and-diversity-eod>.

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 are expected to conduct themselves in a manner that maintains an environment free from sexual harassment and sexual misconduct. Those experiencing sexual harassment are strongly encouraged to report the incidents and to seek help (<https://osmrc.uiowa.edu/>).