STAT:4101 (0002)  Mathematical Statistics II  
Spring 2022

Lectures  MWF 10:30 AM – 11:20 AM  
W228 CB (face-to-face mode)

Instructor  Boxiang Wang, 261 SH, boxiang-wang@uiowa.edu  
Office Hours  WF 11:20 AM – 12:20 PM, Th 2:00 PM – 3:00 PM, or by appointment.  
Teaching Assistant  Zongyi Xu, zongyi-xu@uiowa.edu

Course Website.  Announcements, homework problems, lecture notes, and other course information are posted in ICON [http://icon.uiowa.edu](http://icon.uiowa.edu).

Course Schedule.  [https://docs.google.com/spreadsheets/d/1hb-cyWbe_9OBWstTwzMAQdWqAJueOIoi9X6wNaAx4prg/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1hb-cyWbe_9OBWstTwzMAQdWqAJueOIoi9X6wNaAx4prg/edit?usp=sharing)

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The schedule is listed here:  

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 give students a solid foundation in the theory and methods of statistical inference. Main topics include convergence in distribution and convergence in probability, point estimation, confidence intervals, and testing of statistical hypotheses.

Prerequisites.  STAT4100.

Textbook.  Introduction to Mathematical Statistics (7th or 8th ed.) Hogg, McKean and Craig, (Prentice Hall). We will cover chapters 4-8. There is no essential difference between the two editions. Homework will be assigned based on 7th ed.

Software.  The software R will be used in this class to produce graphs and conduct small simulations to corroborate theoretical results. R can be freely downloaded at [https://mirror.las.iastate.edu/CRAN](https://mirror.las.iastate.edu/CRAN)

Office Hours.  Reserve your slot using the following google sheet and send me a zoom
calendar invitation before your scheduled time.

Homework. Homework is weekly and due 11:59 PM every Thursday. No late homework after 10:30 AM on Friday is accepted. To avoid grading penalty, place a box around each final numerical answer, show all important steps in your reasoning. The homework will be graded based on a three-point scale. The lowest homework will be dropped.

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 quizzes, one midterm and one final exam.

The online take-home quizzes will be posted on Monday 12:01 AM and will be due in one week. Once you get started, you have one hour to finish the quiz. Multiple attempts are allowed but only the latest submission will be kept. You are allowed to drop the lowest quiz.

The midterm and the final are in-person. You are allowed to bring one page (letter sized) of white paper in the midterm and the final exam.

Both the midterm and the final take two fours. The midterm will be held from 6:30 PM to 8:30 PM on Mar 30th in 140SH. The final exam will be comprehensive and held from 8:00 PM to 10:00 PM on May 10th in W228 CB.

Make Up Exam Policy: There will be no make up exams for the quizzes; the lowest grade of the quizzes will be dropped.

Students 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. Documents of the visits from MyChart are required for illness-related absence. Makeup exams are not available for other reasons, including student org field trips, club competitions, job interviews, and personal events. If it is impossible to arrange a makeup exam during the scheduled week, the final exam score substitutes for the missing midterm exam score.

A student who is absent for more than five days or miss a quiz/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.
Some announcements may be posted through emails. Make sure you check your university email at least every 48 hours. More teaching policies and resources are seen in: clas.uiowa.edu/faculty/teaching-policies-resources-examination-policies

**Grading.** Your semester grade will consist of the following components:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>15%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>30%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
</tr>
</tbody>
</table>

As a **rough** guide, A,A- = 90% - 100%, B+,B,B- = 80% - 90%, C+,C,C- = 70% - 80%, D+,D,D- = 60% - 70%.

**“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.

**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](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](https://opsmanual.uiowa.edu/students/absences-class#8.1)).
Absences: Holy Days  The University is prepared to make reasonable accommodations for students whose religious holy days coincide with their classroom assignments, test schedules, and classroom attendance expectations. Students must notify their instructors in writing of any such Religious Holy Day conflicts or absences within the first few days of the semester or session, and no later than the third week of the semester. If the conflict or absence will occur within the first three weeks of the semester, the student should notify the instructor as soon as possible. See Operations Manual 8.2 Absences for Religious Holy Days for additional information.

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%20-%200).

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. 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 a 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. Note that accommodations are not granted retroactively but from the time of the student’s request to the instructor onward. Additional information can be found on the SDS website.

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 are 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
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 University’s policies on free speech and academic freedom (https://freespeech.uiowa.edu/).

Home of the Courses. 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 be mindful of their mental health and seek help as a preventive measure or if feeling overwhelmed and/or struggling to meet course expectations. Students are encouraged to talk to their instructor
for assistance with specific class-related concerns. For additional support and counseling, students are encouraged to contact University Counseling Service (UCS). Information about UCS, including resources and how to schedule an appointment, can be found at counseling.uiowa.edu. Find out more about UI mental health services at: mentalhealth.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.

Non-Discrimination Statement. The University of Iowa prohibits discrimination in employment, educational programs, and activities on the basis of race, creed, color, religion, national origin, age, sex, pregnancy, disability, genetic information, status as a U.S. veteran, service in the U.S. military, sexual orientation, gender identity, associational preferences, or any other classification that deprives the person of consideration as an individual. The university also affirms its commitment to providing equal opportunities and equal access to university facilities. For additional information on nondiscrimination policies, contact the Director, Office of Institutional Equity, the University of Iowa, 202 Jessup Hall, Iowa City, IA 52242-1316, 319-335-0705, oie-ui@uiowa.edu. Students may share their pronouns and chosen/preferred names in MyUI, which is accessible to instructors and advisors.

Sexual Harassment. The University of Iowa prohibits all forms of sexual harassment, sexual misconduct, and related retaliation. The Policy on Sexual Harassment and Sexual Misconduct governs actions by students, faculty, staff and visitors. Incidents of sexual harassment or sexual misconduct can be reported to the Title IX and Gender Equity Office or to the Department of Public Safety. Students impacted by sexual harassment or sexual misconduct may be eligible for academic supportive measures and can learn more by contacting the Title IX and Gender Equity Office. Information about confidential resources can be found here. Watch the video for an explanation of these resources.