

STAT:1020:0CCC ELEMENTARY STATISTICS AND INFERENCE Fall 2021

Class meeting: MWF 11:30am–12:20pm in C20 PC

Instructor: Dr. Erning Li, 231 SH, 335-0820, erning-li@uiowa.edu

Office hours (drop-in hours): 12:45–1:45 pm Mon, Wed & Fri; and by appointment.

Teaching Assistant: Xingyu (Jason) Zhou, xingyu-zhou@uiowa.edu

Office hours: 10:00–11:00 am Tue & Thu, via Zoom (see link in ICON);
4:25–4:55 pm Tue & Thu, 267 SH (in-person); and by appointment.

The TA is the instructor of all discussion sessions and also holds office hours for the class. The TA will post discussion materials in ICON main course website under “Modules.”

Grader: Shaowei Sun, shaowei-sun@uiowa.edu

Feel free to contact the grader regarding questions or concerns about homework grading.

Department Information: Department of Statistics and Actuarial Science, 241 SH, 335-2082.

DEO: Professor Kung-Sik Chan, 241 SH, 335-0712, kung-sik-chan@uiowa.edu

Required Textbook:

Intro Stats. 5th edition, by Richard De Veaux, Paul Velleman, and David Boeck, 2017.

Note: The required text is provided through ICON Direct and your U-Bill will be charged for this e-text, unless you opt out (<https://teach.uiowa.edu/icon-direct-opt-out>) prior to the “tuition and fee reduction” course deadline (<https://registrar.uiowa.edu/course-deadlines>).

Faculty are not responsible for providing students with alternative materials or waiving course requirements. I impose no restriction on the version (ebook, paper book, loose-leaf, or used) of the textbook that students obtain. Nearly all of the textbook contents will be covered in this course and many homework problems will be assigned from the textbook.

Lecture Notes: My lecture notes posted on ICON in advance will be intensively used. Students are strongly recommended to take additional notes in class.

ICON Course Website: Course materials including syllabus, lecture notes, homework assignments, TA discussion materials, answer keys, grades, etc. will be posted on ICON <https://icon.uiowa.edu/>. Make sure your email address on ICON class roster is valid, as important class announcements are sent via ICON.

Prerequisite: MATH:0100 basic algebra or equivalent.

Course Description and Objectives: Introduce students to basic statistical concepts and methods for summarizing, analyzing and presenting data and develop probabilistic reasoning and statistical solutions. Coverage includes visualizing and summarizing data, exploring relationships between variables, sampling survey, elementary probability models, sampling distributions, estimation and prediction, confidence intervals, hypothesis tests of significance, inference for relationships, correlation and regression, as well as basic statistical computing. This course will also emphasize applications and hands-on data visualization and analysis.

This is a *General Education* course in *Quantitative or Formal Reasoning*. Courses approved in this area have as their primary purpose the development of the analytical powers of the student as they might be exercised in presentation and evaluation of mathematical or other formal symbolic systems.

Upon completion of the course students are expected to

- gain good understanding of statistical reasoning and logic of statistical inference;
- understand and interpret basic statistical analysis results;
- conduct basic data visualization and analysis using statistical software;
- appropriately deliver statistical findings.

R Software: Basic statistical computing using R will be taught and used in assignments. R is open-source statistical software—one the most popular and powerful for data analysis. It is freely available at <https://www.r-project.org/> and can be downloaded to personal computer for free use. It is also available on the university Virtual Desktop and at the Instructional Technology Centers (ITCs) such as 41 SH.

See the instructions of R installation and an R introduction in ICON.

Homework: Regular homework will be assigned periodically in ICON; mostly week-long assignments. Students will turn in their assignment using file upload in ICON by its due date and time. Please submit your homework in Word doc, pdf files, or clear, readable scans/images of reasonable size. Please double check your submission each time, as points will be deducted if submission cannot be opened or read, or has missing pages.

Unless prior or prompt arrangements are made for reasons judged to be acceptable by Dr. Li, homework turned in after it is due will receive 0 (zero) credit. Additionally, as answer keys will be posted soon after the due date, late homework submission will only be considered in exceptional circumstances and with prior or prompt notification. All or only some of the problems (in case of time constraints) may be graded for correctness, but students are responsible for understanding all questions.

Students are allowed to discuss homework assignments, but everyone should write up their own individual answers and do their own individual calculations and programming. If “blind copying” in a student’s answer sheets is identified, all involved students will receive zero score and be considered as plagiarism. Discussions among students can be posted on the ICON Discussion Boards; notice that Discussion Board posts are public that everyone in the class will be able to read all of the posts and responses, and respond to them.

A course project will be assigned to provide experience with data collection and statistical computing and with reporting and presenting results of a statistical analysis.

Exams:

Midterm Exam 1 Tentatively Friday, October 1, in class.

Midterm Exam 2 Tentatively Friday, November 5, in class.

Final Exam TBD by the University.

The midterm exams are given at regular class meeting times.

You can bring one standard size (8.5in × 11in) sheet of paper with anything you want written or typed on both sides to each midterm exam, and three such self-prepared help-sheets to the final exam. Also bring a scientific calculator (any type) to each exam. Other than these, all exams are closed-book and closed-notes, unless instructed otherwise.

Any unexcused absence from an exam will result in a score of zero with no opportunity for a makeup. A makeup exam (different but equivalent to the original) will be considered only with written documentation of reasons required by university policy and under prior or prompt arrangement made with Dr. Li, and it should be scheduled as soon as possible.

The final examination date and time will be announced by the Registrar generally by the fifth week of classes. Do not schedule your end-of-semester travel plans until the final exam schedule is announced by the university. It is your responsibility to know the date, time, and place of the final exam.

Grading: A numerical overall score on the scale of 0 to 100 will be determined according to the following (tentative) breakdown

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|-----------|-----|
| Homework | 16% |
| Project | 6% |
| Midterm 1 | 24% |
| Midterm 2 | 24% |
| Final | 30% |

Conversion of these scores into letter grades will be made according to the following scale:

[90, 100] A; [80, 90) B; [65, 80) C; [50, 65) D; < 50 F.

Plus (+) and minus (-) gradings will be given as deemed appropriate. At the discretion of Dr. Li, depending on class performance and attendance/participation in lectures and TA discussions, these ranges may be adjusted, but only downward - criteria will only become easier, not harder. A+ grade will be used only to indicate rare and extraordinary academic achievement.

Integrity of Course Materials: I request that you preserve the integrity of the course materials.

This means that under no circumstance should you make public (either in print or via web postings, social networks, etc.) or disseminate any course materials such as lecture notes, handouts, homework and exam problems, and solutions, as well as other materials that I prepare. You must also strive to avoid making use of any solutions provided by anyone outside of this class. Compliance with this request will be considered part of the academic honesty requirements discussed further below under Administrative Policies.

Attendance and Classroom Environment: Attendance is very vital to your success in this course. Regular attendance is expected and roll may be taken on random days. Students who are absent from class without acceptable excuse should not seek help regarding missed lectures during my office hours.

When in class, please refrain from talking on cell phones, texting, using laptops/tablets (if not for note-taking purpose), and prolonged conversation with a fellow student. Wireless-capable devices such as laptops, tablets, smartphones, etc. must be put away during exams.

Extra Help:

- Statistics Tutorial Lab: Extra help beyond office hours is available for free at the Statistics Tutorial Lab for students in this course. During available times, a graduate student will be present to assist you. Hours for the lab can be found at <https://stat.uiowa.edu/resources/tutoring>.
- Private For-Pay Tutors: The Department of Statistics and Actuarial Science maintains a list of private tutors at <https://stat.uiowa.edu/resources/tutoring>.

COLLEGE OF LIBERAL ARTS AND SCIENCES
Information for CLAS Undergraduates
Fall 2021

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 instructor 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 University'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 (SGO), 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. UCS 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/>).