

The University of Iowa
College of Liberal Arts and Sciences
Department of Statistics and Actuarial Science
Statistics for Business (STAT:1030)
Fall 2020
3:30-4:45 PM Monday & Wednesday (virtual lectures)
<https://homepage.stat.uiowa.edu/~mbognar>

▷ **General Information**

- *Instructor:* Matt Bognar, 358 SH, 335-0799, matthew-bognar@uiowa.edu
- *Office Hours:* 10:00-11:30 Tuesday & Wednesday, and by appointment
- *TA's:* See website
- *DEO:* Prof. Kung-Sik Chan, 241 SH, 335-0712
- *Textbook:* There is *not* a required textbook for this course. Course notes, homework problems, statistical tables, etc. are available for free on ICON (under “Modules”)
- *Optional Textbook:* Moore, McCabe, Alwan, Craig (2016). *The Practice of Statistics for Business and Economics*, 4th edition, MacMillan.
- *ICON/Web:* This course will use ICON (<https://icon.uiowa.edu>) – our ICON page will be used for submitting homework assignments, quizzes, exams, etc. Our webpage will be used for announcements, homework assignments, etc. (<https://homepage.stat.uiowa.edu/~mbognar>).
- *Approved GE:* Quantitative or Formal Reasoning. This course is primarily for students following the business curriculum. Topics covered include descriptive statistics, probability, estimation, testing hypotheses, and regression and correlation. Students analyze data using the *R* computer package.

▷ **Course Objectives**

- In this course we will cover the following topics (in roughly this order):
 - * Statistical graphics, summary statistics
 - * Sampling techniques (SRS, stratified, cluster), experimental design (treatment and control groups, randomization, blinding)
 - * Probability – addition and product rules, independence, conditional probability, Law of Total Probability, Bayes Theorem
 - * Probability distributions – expectation and variance; binomial, Poisson, and normal distributions
 - * Sampling distributions, Central Limit Theorem (CLT)
 - * Inference for μ (σ known, σ unknown)
 - * Inference for $\mu_1 - \mu_2$ ($\sigma_1 = \sigma_2$, $\sigma_1 \neq \sigma_2$)
 - * Inference for p (Wald and Agresti-Coull confidence intervals, Score test) and $p_1 - p_2$
 - * Type I & II errors, statistical power
 - * Chi-square test for independence, Chi-square goodness of fit test, relative risk, odds ratio, Simpson's paradox
 - * Correlation and simple regression (including inference)
 - * Multiple regression (time permitting)
- Students learn how to assess statistical significance for all covered inferential procedures
- We will learn how to do many of the statistical analyses described in class using the statistical software package *R*. *R* is available in the campus computer labs, and *R* can be downloaded for free at <https://www.r-project.org>. We use Excel a little bit as well. Hand computation will be stressed, however.

▷ **Grading**

- *Exams (65% total):* There will be 2 midterm exams (20% each) and a final exam (25%). All exams will be 2 hours in length. Exam dates:

- * *Exam 1:* Tuesday, September 29, 6:30-8:30 PM, online exam
- * *Exam 2:* Tuesday, November 3, 6:30-8:30 PM, online exam
- * *Final Exam:* TBA

Students are expected to take the exams at the scheduled time. It is your responsibility to make the appropriate arrangements *beforehand*. It is your responsibility to have a calculator, pencils, and statistical tables for the exams.

- *Quizzes (25% total):* An online quiz will be given each Wednesday at 3:30 (you will have approximately 20 minutes to complete the quiz). *Make-up quizzes will not be allowed under any circumstances.* The lowest three quiz scores will be dropped. It is your responsibility to have a calculator, pencils, and statistical tables for the quizzes.
- *Homework (10% total):* Homework will be due each Thursday – we will be submitting homework online. *Late homework will not be accepted under any circumstances.* The lowest three homework scores will be dropped. You will not succeed in this course without doing the homework. You need to invest the time and effort to succeed.
- Your attendance, participation, preparedness, work ethic, etc. may affect your grade.
- This course uses the +/– grading system (i.e. grades such as A–, B+, and B will be assigned).
- Grade cutoffs will follow the usual 90%, 80%, 70%, 60% breakdown. This class is not curved.
- Final averages are computed to 2 decimal places; as such, a final average of 79.98% will receive a C+.

▷ ***Extra Help***

- *Statistics Tutorial Lab:* There is a *free* 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://www.stat.uiowa.edu/resources/tutoring>. A list of *non-free* private tutors can be found on this page as well.

▷ ***Notes***

- Success in this class requires a large time commitment. A *minimum* of 10 to 15 hours per week is expected. Review/study numerous times throughout the week.
- The material in this course appears *deceptively* easy. *Frequently quizzing/testing yourself is the best, most efficient way to learn the material.*
- If you are absent from discussion (without giving prior notice to your TA), your TA can not provide handouts/notes.

▷ ***Academic Misconduct***

- You must take quizzes and exams in isolation (nobody can be nearby). You may not use a phone on quizzes or exams. You may not use a computer, phone, or any device to access materials/software/people which would give you an unfair advantage on the quizzes and exams. A webcam may be required during quizzes and exams for proctoring purposes.
- If you finish all homework problems in their entirety, you may then work with a fellow student to compare methods, answers etc. *Simply copying another student's homework will be considered academic misconduct.*
- All academic misconduct will receive the following sanctions:
 1. A report will be filed with the UI.
 2. You will receive a 0 on the exam/quiz/homework on which the academic misconduct took place.
 3. **Your final grade will be lowered by 2 full letter grades (e.g. from a B+ to a D+).**
- Students are encouraged to contact Matt (or your TA) about fellow students possibly engaging in academic misconduct. Your identity will remain totally anonymous.

▷ ***The College of Liberal Arts and Sciences Policy and Procedures***

- *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. 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 2020 in response to the COVID-19 pandemic. Particularly, all students are required to wear a face covering when in a UI building, including a classroom. In addition, the density of seats in classrooms has been reduced; in some instances, this will allow 6 feet or more between students while other cases, it may be less. Regardless, wearing a face covering and maintaining as much distance as possible are vital to slowing the spread of COVID-19. 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 arrangements; 335-1462 (<https://sds.studentlife.uiowa.edu/fall-2020/covid-19-temporary-learning-arrangements/>).
- *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 the 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 location 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>).
- *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/>.