The University of Iowa  
College of Liberal Arts and Sciences  
Department of Statistics and Actuarial Science  

STAT:3510 Biostatistics (IGPI:3510) -Spring 2021

Lecture A: 8:30-9:20 am Monday, Wednesday, & Friday, via Zoom  
Discussion Sections: A13, A14, A15, A16  
via Zoom at assigned times

▷ General Information

– **Instructor:** Michelle Larson, 221 SH, 335-0814, michelle-larson@uiowa.edu  
  Drop-In Hours (via Zoom): 9:30-11:00am and 2:30-5:00pm Mondays and by appointment  
  (also 12:30-1:30pm Wednesdays for ACTS:3080)

– **TAs:** Jason Zhou xingyu-zhou@uiowa.edu  
  Drop-In Hours (via Zoom): 9:30 - 11:00am Tuesdays and 9:30 - 11:00am Thursdays and by appointment

– **DEO:** Kung-Sik Chan, 241 SH, 335-0712, kung-sik-chan@uiowa.edu
– **Calculator:** Students are strongly encouraged to use a calculator capable of performing statistical computations. In-class support will be given for students using a TI-83 or TI-84; limited help from the instructor is available for other models (e.g. TI-89, Casio models). Note: Due to COVID restrictions, students will have the option to use other software for performing required statistical calculations (R, SAS, calculator simulators, apps, etc.). Please see course web site for further information.

– **Reference Textbook:** NONE - Course is taught from instructor notes posted on ICON; additional resources also provided on ICON; see instructor if you require textbook recommendations or further resources

– **ICON/Web:** This course will use ICON powered by Canvas (http://icon.uiowa.edu) for announcements, quizzes, homework assignments, etc. Students are expected to check ICON regularly.

▷ Course Objectives

– In this course we will cover the following topics (in roughly this order):  
  * Summary statistics, Statistical graphics  
  * Probability (addition and product rules, conditional probability, Bayes theorem)  
  * Random Variables and Probability Distributions (expectation, variance, Binomial, Poisson)  
  * Normal distribution, Sampling distributions, Central Limit Theorem (CLT)  
  * Sampling techniques (SRS, stratified, cluster)  
  * Experimental design (treatment and control groups, randomization, blinding)  
  * Inference for single proportions, \( p \) and two-sample proportions, \( p_1 - p_2 \)  
  * Inference for means \( \mu \) (\( \sigma \) unknown)  
  * Inference for difference in means, \( \mu_1 - \mu_2 \) (\( \sigma_1 \neq \sigma_2 \))  
  * Type I & II errors; statistical power  
  * Correlation and simple regression (including inference)  
  * Inference for two-way contingency tables (Chi-square tests)  
  * Other topics (e.g. Nonparametric Tests, ANOVA, Multiple regression) as time permits

– Students will learn how to assess significance for all inferential procedures.

– Students are encouraged to use technology to perform statistical analyses described in class, however, explicit work (formulas, computations, etc.) is required to be shown.

▷ Accomodations

– Students who require formal accomodations must meet with the instructor individually via Zoom. Please send an email to schedule an appointment (michelle-larson@uiowa.edu).
**Grading**

- **Exams:** There will be 2 midterm exams (22.5% each) and a comprehensive final exam (35%). Midterms will be given in the evenings via Canvas. Exam dates:
  - Exam 1: Wednesday, March 3, 2021, 6:30PM - 8:30PM
  - Exam 2: Wednesday, April 7, 2021, 6:30PM - 8:30PM
  - Final Exam: TBA

Students are expected to be present for the exams at the scheduled time. If you have a legitimate, unavoidable conflict, it is your responsibility to make the appropriate arrangements no less than one week in advance. If you miss an exam due to a sudden absence, email the instructor immediately.

- **Homework:** (10% total) Homework will be submitted via Canvas and will be due each Wednesday at 11:59pm. Because the grader may not have enough time to grade each problem for every student, a subset of the assigned problems may be graded. **Homework that is illegible or not sized appropriately will be given a score of zero.** The lowest two homework scores will be dropped. Students are encouraged to work together on homework but work submitted must be your own. Homework must be neatly written; sized appropriately, and solutions must appear in the order assigned.

- **Online Quizzes:** (5% total) An online (ICON/Canvas) quiz will be given following each lecture meeting. Quiz deadlines will vary (see weekly assignment guide), however, students will have a minimum of 48 hours following the associated lecture to complete each quiz. **Make-up quizzes will not be allowed.** The lowest four quiz scores will be dropped.

- **Project:** (5% total) Students will complete an individual project due 11:59pm, Wednesday, March 31, 2021. A written report and a PowerPoint slide will be submitted via ICON/Canvas. Detailed information will be given in class.

- **Discussion:** (0% total) Students are expected to attend and participate in scheduled discussions. Material will be covered in discussion that will not be provided in lecture.

- Your attendance, participation, preparedness, work ethic, etc. may affect your final grade.

- This course uses the +/- grading system (i.e. grades such as A-, B+, and B will be assigned). I do NOT anticipate a curve.

- Grade cutoffs will be no higher than the usual 90 (A-), 80 (B-), 70 (C-), 60 (D-) breakdown.

- Bonus points may be given at any time and may be applied to any part of your grade.

**Extra Help**

- Past students have found Drop-In Hours to be extremely helpful in understanding the course concepts. This time is structured as a study group environment with students sharing insights and asking questions of the instructor. All students are encouraged to attend, even if you just wish to come and listen to the conversations.

- Students are encouraged to seek help from their TA or any other TA for this class, the instructor, and/or peers. A list of non-free private tutors can be found at [http://www.stat.uiowa.edu/resources/tutoring](http://www.stat.uiowa.edu/resources/tutoring). While not specific to our class, graduate students in the Statistics Tutorial Lab may also be able to assist you. Hours for the lab can be found on this same web page.

**Notes**

- Students are strongly encouraged to attend each lecture time and discussion time. It will benefit your understanding of the material.

- Please mute your audio when joining Zoom sessions.

- 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. Students are encouraged to work lots of practice problems. **Frequently quizzing/testing yourself is the best, most efficient way to learn the material.** Don’t memorize; try to understand.

- Students are expected to attend the discussion for which they registered. If you have a one-time issue and you are unable to attend your assigned discussion, please contact the instructor in advance to make alternative arrangements.

- When you are done reading this document, and before the final exam begins, email me a picture of a flower for 5 bonus quiz points.
▷ **Academic Misconduct**

- During exams, you may not talk, whisper, pass notes, view other students’ work, allow a fellow student to view your own work (cover your paper!), use class notes, etc. All such actions are considered academic misconduct and will be reported to the UI.

- You may, however, work with a fellow student on your homework provided you *both do all of the problems in their entirety* (at which point you can compare methods, approaches, and answers). *Simply copying another student’s homework will be considered academic misconduct.*

▷ **The College of Liberal Arts, Teaching Policies & Resources**

https://clas.uiowa.edu/faculty/teaching-policies-resources-syllabus-insert

- **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 students 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](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](https://clas.uiowa.edu/students/handbook/academic-fraud-honor-code). 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](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 [http://sds.studentlife.uiowa.edu/](http://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 maybe found here: [http://clas.uiowa.edu/students/handbook](http://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](https://clas.uiowa.edu/students/handbook). 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 (+1 319 335-1462; [https://sds.studentlife.uiowa.edu/fall-2020/covid-19-temporary-learning-arrangements/](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 correspondence sent to their UI email address (uiowa.edu) and must use this address for all communication within UI (Operations Manual, III.15.2, http://opsmanual.uiowa.edu/human-resources/professional-ethics-and-academic-responsibility#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. For more information, see 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: UI is committed to making the classroom a respectful and inclusive space for all people irrespective of their gender, sexual, racial, religious and other identities. Toward this goal, students are invited in MyUI to optionally share the name 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 or diversity@uiowa.edu)

– 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 http://osmrc.uiowa.edu/.