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

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

Lecture A: 8:30-9:20 am Monday, Wednesday, & Friday, 100 PH

▷ General Information

– Instructor: Michelle Larson, 221 SH, 335-0814, michelle-larson@uiowa.edu
  Drop-In Hours: 6:30pm - 8:30pm Mondays (location TBA),
  9:30am - 10:30am Fridays (221 SH),
  and by appointment
– TAs: Sam Dannels, 266 SH, sam-dannels@uiowa.edu
  Drop-In Hours: TBA, 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). Students will not be allowed to use calculators on their laptop, tablet, watch, or other electronic devices during exams.
– 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 Canvas/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)
  * Nonparametric Tests (time permitting)
  * ANOVA (time permitting)
  * Multiple regression (time permitting)
– 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 accommodations must meet with the instructor individually. Please send email to schedule an appointment.
Grading

- **Exams:** There will be 2 midterm exams (22.5% each) and a comprehensive final exam (35%). Midterms will be given in the evenings. Exam dates:
  - Exam 1: Wednesday, September 29, 2021, 6:30PM - 7:45PM W10 PBB
  - Exam 2: Wednesday, November 3, 2021, 6:30PM - 7:45PM W10 PBB
  - 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 at least 48 hours in advance. If you miss an exam due to a sudden absence, email the instructor immediately. Note that during exams, students may be asked to place belongings, including electronic devices other than stand-alone calculators, at the front of the room.

- **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, a subset of the assigned problems will 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 written neatly, sized appropriately, and solutions must appear in the order assigned. Please leave sufficient space between problems for feedback notes. Also, drop-in hours are a great place to get help with your homework and meet other students!

- **Online Quizzes:** (5% total) An online (Canvas/ICON) quiz will be given following each lecture. Students will have until the beginning of the next lecture to complete the 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 5pm, Wednesday, October 27, 2021. The typed report and PowerPoint slide will be submitted on Canvas/ICON. 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, working together in groups, 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, 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

- Do not miss class. You need to attend every day to succeed in this class.

- Please refrain from eating, using your phone, wearing earbuds, and using other electronic devices during class.

- 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.
– If you are absent from discussion or lecture without prior notice, we will not provide handouts/notes. 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 fish for 5 bonus quiz points.

▷ Academic Misconduct

– You may work with a fellow student on homework provided you both do all of the problems (at which point you can compare methods, approaches, and answers). Copying another student’s homework, partially or in its entirety, will be considered 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.

▷ CLAS and Graduate College Academic Policies – see attached
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-%2C2%2C%2A0-%2C0).

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/.

COLLEGE OF LIBERAL ARTS AND SCIENCES
Information for CLAS Undergraduates
Fall 2021
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 (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/).
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
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ACADEMIC MISCONDUCT
Plagiarism and the process for addressing academic misconduct of graduate students are defined in Section IV, Article F “Plagiarism by Graduate Students” of the UI Graduate College Manual of Rules and Regulations. Please contact the CLAS Associate Dean for Graduate Education for any necessary assistance in navigating the process mandated by the Graduate College.

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Students with a complaint about a grade or a related academic matter should first visit with the instructor and then with the course supervisor (if applicable), and finally with the Director of the school, department, or program offering the course. If a graduate student has not been able to resolve the issue through the Director of the school, department, or program, they should contact the associate dean for graduate education in the college of liberal arts and sciences.

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