

1 General Information

Instructor: Rhonda DeCook
211 Schaeffer Hall, 335-3249
rhonda-decook@uiowa.edu

Instructor Office Hours: Monday 9:45-11:15am
(or by appointment) Wednesday 9:45-11:15am

Required Text is provided through ICON direct (e-text):
Applied Statistics and Probability for Engineers, 7th edition, 2019.
by Douglas C. Montgomery and George C. Runger.

A charge will be added to your U-Bill for this e-text.

Time and Location: Lecture AAA: MWF 8:30-9:20 LR2 Van Allen Hall
Lecture BBB: MWF 2:30-3:20 LR2 Van Allen Hall

Teaching Assistants: See course website for TA names and Office Hours.

Public Course Website: <http://homepage.stat.uiowa.edu/~rdecook/stat2020.html>

ICON Course Website: Solutions and grades will be posted in ICON, but other items such as homework, quiz dates, etc. are at the public website.

Course Goals and Objectives: In this course we will develop probabilistic reasoning and statistical solutions for problems encountered in engineering and the physical sciences.

Tutorial Lab Extra Help: Extra help beyond office hours is freely available at the Statistics Tutorial Lab. See <http://www.stat.uiowa.edu/resources/tutoring> for links.

MINITAB Software: Available through UI virtual desktop see <http://virtualdesktop.uiowa.edu>

Final Exam: Date and time to be determined.
Midterm 'Evening' Exams: Thursday, September 26, 6:30-8pm, W290 CB (exam 1)
Thursday, November 7, 6:30-8pm, W290 CB (exam 2)

Department: Statistics and Actuarial Science, CLAS
DEO: Dr. Kung-Sik Chan, 241 Schaeffer Hall
319-335-0712

2 Topics Covered

The collection, analysis, and display of information are discussed. Probability theory and statistics teach us how to characterize and model variability in processes and measurements. Probability theory, random variables, important discrete and continuous distributions, estimation of parameters and testing of hypotheses using sample data will be discussed. Regression methods will also be introduced. MINITAB, an interactive statistical computer package will be introduced and used.

3 Tentative Class Schedule

<u>Week</u>	<u>Topic</u>	<u>Chapter</u>
1	Introduction, Sample Spaces and Event	1 & 2
2	Probability Rules, Counting Techniques, Conditional Probability	2
3	Independence, Random Variables, Discrete Random Variables	2 & 3
4	Common Discrete Distributions	3
5	Continuous Random Variables	4
	Exam 1: Thursday, Sept. 26, 6:30-8pm	
6	More on Continuous Random Variables	4
7	Joint Distributions	5
8	Correlation, Bivariate Normal, Numerical Summaries	5 & 6
9	Central Limit Theorem, Point Estimators	7
10	Confidence Intervals for μ and proportion p , t -distribution	8
11	Hypothesis testing for μ and p	9
	Exam 2: Thursday, Nov. 7, 6:30-8pm	
12	Inference for $\mu_1 - \mu_2$	10
13	Simple Linear Regression (SLR), Least-Squares Estimators	11
	–Thanksgiving Break–	
14	Hypothesis test in SLR, Correlation, Checking Assumptions	11
15	Multiple Linear Regression (if time permits)	12
16	Final Exam: Date and Time TBD	

Tentative days of no class:

Nov. 23-30, Thanksgiving Break

Compensation for night exams 1 & 2 (to be announced)

4 Lectures/Readings/Quizzes/Discussions

Students should read material prior to lecture. We will *not* cover all sections of each chapter, so please focus your readings on the material that was covered in class. In the case of an absence, students are responsible for the material covered and must get the notes from a fellow student.

Quizzes will be given during lecture (or discussion). Quiz make-ups will not be given, but you will be able to drop your lowest quiz score (use this wisely).

Similarities and Differences in AAA and BBB Lectures:

Lectures will essentially be the same. But YOU MUST ATTEND YOUR OWN LECTURE FOR QUIZZES (zero quiz points will be given if attending the wrong lecture).

Attendance at discussion is important. Quizzes may be given during this time period, and worksheets for extra practice may also be used. Quiz make-ups will not be given.

5 Grading Policy

Assessment in this course will be based on the following components:

Weekly Homework	10%	Assigned Friday, due the following Friday at classtime. Due to time constraints, the grader may grade <u>only some of the assigned questions</u> , but you are responsible for understanding all questions. I will not accept late homework, but will instead throw-out your lowest homework score. - <i>Homework without a section number will receive a 5% deduction.</i>
Scheduled Quizzes*	10%	Short quizzes will be given in two manners: 1) written quizzes in lecture and 2) written quizzes in discussion. There are no quiz make-ups, but I will instead throw-out your lowest scheduled quiz score. <i>Prepare for these!!! They are over the most recent homework for which solutions are posted. No notes or 'crib sheets' will be allowed.</i> See public website for the scheduled quiz dates.
Unscheduled Quizzes*	5%	Again, short quizzes may be given in two manners: 1) written quizzes in lecture and 2) written quizzes in discussion. There are no quiz make-ups, but I will instead throw-out your lowest unscheduled quiz score.
MINITAB Projects	5%	Two projects will be assigned. They will give you experience with MINITAB software, and with reporting results of a statistical analysis.
Exams*	70%	Midterm Exam 1 - 20% Midterm Exam 2 - 20% Final Exam - 30%

*No make-up exams or quizzes will be given unless there is an absence due to unavoidable circumstances as stated by University policy (documentation will be required in such a case). Missed exams and quizzes will receive a score of 0.

BE SMART: Save your 'drop the lowest score' option for WHEN YOU REALLY NEED IT!! Your car breaks down, you're too tired to get out of bed, any unexcused absence (i.e. those kinds of absences that seem to be a legitimate absence due to daily life conflicts).

Approximate Grading Guide:

90-100	A
80-89	B
70-79	C
60-69	D
Below 60	F

Plus and minus grades will be given as deemed appropriate.

Policy on Student Collaboration:

It can be very beneficial to your learning process to work with others while learning a new topic. This is appropriate for homework and take-home projects, but all students must turn-in their own work in their own handwriting. All quizzes and exams are expected to be solo endeavors.

Calculator:

There are many calculators out there that are appropriate for this class. Your calculator should be able to calculate *one-variable* and *two-variable statistics* (i.e. mean, variance, correlation, etc.). Whichever calculator you choose, just make sure you are familiar with your own calculator.

Resources for Additional Help:

- *TA and Professor Office Hours:* Our office hours are a great resource for students. Please take advantage of them.
- *Statistics Tutorial Lab:* There is a *free* statistics tutorial lab. During available times, a knowledgeable person will be present to assist students. Information on the lab can be found at

<http://www.stat.uowa.edu/resources/tutoring>

- *Private For-Pay Tutors:* The Department of Statistics and Actuarial Science maintains a list of private tutors at

<http://www.stat.uiowa.edu/resources/tutoring>

Absences and Attendance:

Students are responsible for attending class and for contributing to the learning environment of a course. This course does not have a specific component of the final grade based on attendance, but consistent attendance in lectures and discussion is strongly encouraged. As the syllabus above state, there are no make-ups for missed quizzes, but you may throw-out your lowest quiz score during the semester. See the CLAS website for more information on illness, religious, and holy day circumstances (*<https://clas.uiowa.edu/faculty/student-attendance-and-absences>*).

Communication and the Required Use of UI Email:

Students are responsible for official correspondences sent to their UI email address (uiowa.edu) and must use this address for all communication within UI (Operations Manual, III.15.2).

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 other policies. These policies vary by college (*<https://clas.uiowa.edu/students/handbook>*).

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 the UI email address.

CLAS Final Examination Policies:

The final exam schedule for each semester 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 final exam information. No exams of any kind are allowed the week before finals.

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/>

Nondiscrimination in the Classroom:

The University of Iowa is committed to making the classroom a respectful and inclusive space for all people irrespective of their gender, sexual, racial, religious or other identities. Toward this goal, students are invited to optionally share their preferred names and pronouns with their instructors and classmates. 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, diversity@uiowa.edu, or visit 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 have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. For assistance, definitions, and the full University policy, see <https://osmrc.uiowa.edu/>.

Complaints :

Students with a complaint should first visit with the instructor or course supervisor and then with the departmental executive officer (DEO), also known as the Chair. Students may then bring the concern to CLAS (<https://clas.uiowa.edu/students/handbook/student-rights-responsibilities>).