

For Fall 2020, this course will be delivered through the World Wide Web (WWW).

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, 2018.
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 WWW
Lecture BBB: MWF 2:30-3:20 WWW

Teaching Assistants: TAs and Office Hours to be announced.

ICON Course Website: Our ICON website will be used to provide course materials
such as recorded lectures, homework, quizzes, etc.

Quizzes and exams will be taken online through the ICON site.

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 at the Library Commons-Group Area E.
The lab is also available virtually on Mondays 11-12:30.
See <http://www.stat.uiowa.edu/resources/tutoring> for links.

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

Final Exam: For Fall 2020, a data analysis project will be completed and
turned-in via ICON in lieu of a final exam.

Midterm 'Evening' Exams: Thursday, September 24, 6:30-8pm online (exam 1)
Thursday, November 5, 6:30-8pm, online(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. 24, 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. 5, 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 Minitab Project Due: Date and Time TBD	

Tentative days of no class:

Nov. 23-27, Thanksgiving Break

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 in real-time. Quiz make-ups will not be given, but you will be able to drop your lowest quiz score (use this wisely).

The extra problems covered in discussion class are useful for better understanding the material. Worksheets for extra practice may also 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 4pm. The HW will be submitted by entering answers into the fields in the ICON website or choosing from multiple choice options (i.e. electronic submission). I will not accept late homework, but will instead throw-out your lowest homework score. NOTE: When you go to enter your HW answers in ICON, it will say “ Take the quiz ”, but it will still be graded under HW points.
Scheduled Quizzes*	40%	Short quizzes (about 20 minutes) will be given during in lecture (in real-time) every week or week and a half. There are no quiz make-ups, but I will instead throw-out your lowest scheduled quiz score. <i>Prepare for these!!! No notes or ‘crib sheets’ will be allowed.</i> Our first quiz is scheduled for Wednesday, Sept. 2 during class.
MINITAB Projects 1 & 2	5%	Two short projects will be assigned. They will give you experience with MINITAB software, and with reporting results of a statistical analysis.
Midterm Exams*	40%	Exam 1 - 20% Exam 2 - 20%
Final Minitab Project	5%	In lieu of a final exam this semester, students will turn-in a final MINITAB project over the last topics in the course.

*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. 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>.

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:

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 info <https://sds.studentlife.uiowa.edu/>.

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 info <https://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 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/>.

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>.