

Statistics 341

Fall 2020

Instructor:	Dr. Roy
Office:	3415 Snedecor Hall Phone: (515) 294-8701 email: vroy@iastate.edu
Course Management:	Canvas
Office Hours:	M 10-11 am, T 2:10 - 3 PM at zoom or by appointment
Lecture:	MWF 9:55am to 10:45am, T 12:10-2:00pm (On Tuesdays synchronous labs/lectures will be held through Zoom/WebEx. See the Announcement page in canvas for the links.) The course will be delivered online, but the exams will be held in-person.
Required Text:	<i>Modern Mathematical Statistics with Applications</i> , 2 nd Ed., Devore and Berk, Springer 2012 (The book is available online at https://www.lib.iastate.edu/ .)
Grader:	Sepideh Mosaferi (email: mosaferi@iastate.edu) Office Hours: R 3:10-4:30 pm, F 9:30 am - 11:00am
Reference Text:	<i>Mathematical Statistics with Applications</i> , 7 th Ed., Wackerly, Mendenhall, Scheaffer, Duxbury, 2008
Course Description:	Probability; distribution functions and their properties; classical discrete and continuous distributions; moment generating functions, multivariate probability distributions and their properties, transformations of random variables, simulation of random variables.

Course Policies:

- **Accessibility Statement**

Iowa State University is committed to assuring that all educational activities are free from discrimination and harassment based on disability status. Students requesting accommodations for a documented disability are required to work directly with staff in Student Accessibility Services (SAS) to establish eligibility and learn about related processes before accommodations will be identified. After eligibility is established, SAS staff will create and issue a Notification Letter for each course listing approved reasonable accommodations. This document will be made available to the student and instructor either electronically or in hard-copy every semester. Students and instructors are encouraged to review contents of the Notification Letters as early in the semester as possible to identify a specific, timely plan to deliver/receive the indicated accommodations. Reasonable accommodations are not retroactive in nature and are not intended to be an unfair advantage. Additional information or assistance is available online at www.sas.dso.iastate.edu, by contacting SAS staff by email at accessibility@iastate.edu, or by calling 515-294-7220. Student Accessibility Services is a unit in the Dean of Students Office located at 1076 Student Services Building.

- **Prep Week** This class follows the Iowa State University Dead Week guidelines as outlined in <https://www.provost.iastate.edu/academic-programs/dead-week>

- **Harassment and Discrimination** Iowa State University strives to maintain our campus as a place of work and study for faculty, staff, and students that is free of all forms of prohibited discrimination and harassment based upon race, ethnicity, sex (including sexual assault), pregnancy, color, religion, national origin, physical or mental disability, age, marital status, sexual orientation, gender identity, genetic information, or status as a U.S. veteran. Any student who has concerns about such behavior should contact his/her instructor, Student Assistance at 515-294-1020 or email dsoas@iastate.edu, or the Office of Equal Opportunity and Compliance at 515-294-7612.

- **Religious Accommodation** If an academic or work requirement conflicts with your religious practices and/or observances, you may request reasonable accommodations. Your request must be in writing, and your instructor or supervisor will review the request. You or your instructor may also seek assistance from the Dean of Students Office or the Office of Equal Opportunity and Compliance.

- **Academic Dishonesty:** This class will follow Iowa State University policy on academic dishonesty found in the Iowa State University Catalog. A score of zero will be given for the entire assignment in which the academic dishonesty occurred. If a pattern of academic dishonesty has been found to occur, a grade of F for the entire course may be given.
- **Midterm Exams:** There are two hourly exams in Stat 341. If you have a reasonable conflict for a particular exam, you must let me know before the time of the exam. Failure to do so **will result in a 0** for the exam. Exam #1 and Exam #2 dates are tentatively scheduled on September 14, 9:55am-10:45am and October 19, 9:55am- 10:45am respectively. The exams will take place at the Lied Racquetball Courts.
- **Final Exam:** The final exam in Statistics 341 is cumulative with special emphasis on the material covered since Exam #2. Tentative date and time for the final exam is Monday, November 23, at 9:45 AM. The final exam will take place at the Lied Racquetball Courts.
- **Homework:** Individual practice is an important part of learning. For this reason homework problems will be assigned throughout the semester. Homework assignments will be due online on the due date. Late homework assignments will not be accepted. Solutions to the homework problems will be posted in Canvas.
- **Quiz:** Quiz will be given on randomly chosen days during the class on Tuesdays. The dates of these will not be announced before. Solutions to the quiz problems will be posted on the Canvas course page.
- **Computing:** Some class and lab activities and homework assignments may incorporate work on the computer using the statistical analysis package R. Be sure to allow enough time to complete assignments. It is your responsibility to allow for computer failures and/or difficulty finding a computer with the R software. Please see Canvas for instructions on downloading R to your own computer and for using R in Stat 341.
- **Grading:** Letter grades including plus/minus will be given based on performance on exams, quizzes, and homework. The specific grading scale is not determined until after all grades have been calculated. The percentage distribution is as follows: Lowest Percentage Score of Exams 1, 2 = 15%; Other Exam = 25%; Final Exam = 30%; Homework = 15%, Quiz and Lab= 15%
- **General Outline for Course Material:** Below is a general outline of the course material covered in Stat 341.

Probability

Sample spaces and events, Set notation, Counting, Conditional probability, Independence, Probability laws, Bayes' rule

Discrete random variables and probability distributions

Discrete Random Variables, Expected Values, Moment Generating Functions, Bernoulli Dist., Binomial Dist., Geometric Dist., Negative Binomial Dist., Hypergeometric Dist., Poisson Dist.

Continuous Random Variables and probability distributions Continuous Random Variables, Expected Values, Moment Generating Functions, Uniform Dist., Normal Dist., Gamma Dist., Beta Dist.

Joint Probability Distributions

Discrete Joint Probability Distributions, Continuous Joint Probability Distributions, Expected Values, Covariances, Multinomial and Bivariate normal distributions, Conditional Expectations

Transformations of Random Variables and Sampling Distributions

Transformations with One Random Variable, Transformations with multiple Random Variables, Distributions of Ordered Statistics,

- **COVID-19 health and safety requirements:** COVID-19 health and safety requirements Students are responsible for abiding by the university's [COVID-19 health and safety expectations](#). All students attending this class in-person are required to follow university [policy](#) regarding health, safety, and face coverings:
 - wear a cloth face covering in all university classrooms, laboratories, studios, and other in-person instructional settings and learning spaces. Cloth face coverings are additionally required to be worn indoors in all university buildings, and outdoors when other people are or may be present where physical distancing of at least 6 feet from others is not possible. Students with a documented health or medical condition that prevents them from wearing a cloth face covering should consult with [Student Accessibility Services](#) in the Dean of Students Office.
 - ensure that the cloth face covering completely covers the nose and mouth and fits snugly against the side of the face.
 - practice physical distancing to the extent possible.
 - assist in maintaining a clean and sanitary environment.
 - not attend class if you are sick or experiencing symptoms of COVID-19.
 - not attend class if you have been told to self-isolate or quarantine by a health official.
 - follow the instructor's guidance with respect to these requirements. Failure to comply constitutes disruptive classroom conduct. Faculty and teaching assistants have the authority to deny a non-compliant student entry into a classroom, laboratory, studio, conference room, office, or other learning space.

These requirements extend outside of scheduled class time, including coursework in laboratories, studios, and other learning spaces, and to field trips. These requirements may be revised by the university at any time during the semester.

In accordance with university policy, instructors may use a face shield while they are teaching as long as they are able to maintain 8 feet of physical distance between themselves and students during the entire instructional period. Some form of face covering must be worn at all times in learning spaces regardless of the amount of physical distancing.

Faculty may refer matters of non-compliance to the Dean of Students Office for disciplinary action, which can include restrictions on access to, or use of, university facilities; removal from university housing; required transition to remote-only instruction; involuntary disenrollment from one or more in-person courses; and other such measures as necessary to promote the health and safety of campus.

It is important for students to recognize their responsibility in promoting the health and safety of the Iowa State University community, through actions both on- and off-campus. The university's faculty asks that you personally demonstrate a commitment to our Cyclones [Care campaign](#). Iowa State University's faculty support the Cyclones Care campaign and ask you personally to demonstrate a commitment to our campaign. Your dedication and contribution to the campaign will also protect your family, classmates, and friends, as well as their friends and families. Our best opportunity for a successful fall semester with in-person learning and extramural activities requires all of us to collaborate and fully participate in the Cyclones Care campaign.