

Statistics 342

Spring 2020

Instructor:	Dr. Roy
Office:	3415 Snedecor Hall Phone: (515) 294-8701 email: vroy@iastate.edu
Course Management:	Canvas
Office Hours:	M 2:10-3pm, W 3:10-4pm, or by appointment
Lecture:	MWF 10-10:50am, Gilman 1652, T 12:10-2:00pm, Snedecor 1105
Required Text:	<i>Modern Mathematical Statistics with Applications</i> , 2 nd Ed., Devore and Berk, Springer 2012
Grader:	Kunal Das (email: kunaldas@iastate.edu), Office Hours: R 12-1:30pm, F 12-1:30pm (Snedecor 1404)
Course Description:	Transformations of random variables; sampling distributions; confidence intervals; theory of estimation and tests of hypotheses; linear model theory, introduction to Bayesian inference.

- **Midterm Exams:** There are two midterm exams in Stat 342. The exams will be given during the Lab times on Tuesdays. 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 February 18, 12:10-2:00pm and March 31, 12:10-2:00pm respectively.
- **Final Exam:** The final exam in Statistics 342 is cumulative with special emphasis on the material covered since Exam #2. The final exam is scheduled for Thursday, May 7 from 9:45 - 11:45am. **Do not make plans to leave campus for the break until you know your final exam schedule.**
- **Homework:** Individual practice is an important part of learning. For this reason homework problems will be assigned throughout the semester. Homework assignments can be turned in during class or during TA's office hour in Snedecor Hall. All assignments will be due on the assigned due date. Homework assignments turned in late will not be accepted. Solutions to the homework problems will be posted on the Canvas course page.
- **Quiz:** Quiz will be given on randomly chosen days during the lab 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 homework assignments may incorporate work on the computer using the statistical analysis package R. R is free and can be downloaded to your own computer. See Canvas for instructions on downloading R. Alternatively, the Department of Statistics has three computer labs (1105, 1207 and 3121 Snedecor Hall) with computers containing the R package. Be sure to allow enough time to complete all homework assignments. It is your responsibility to allow for computer failures and/or difficulty finding a computer with the R software.
- **Grading:** Letter grades including plus/minus will be given based on performance on exams 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 = 30%; Final Exam = 30%; Homework = 18%, Quiz = 7%
- **General Outline for Course Material:** Below is a general outline of the course material covered in Stat 342.

Transformations of Random Variables and Sampling Distributions

Transformations with One Random Variable, Transformations with multiple Random Variables, Distributions of Ordered Statistics, Sampling Distributions, Recap: Central Limit Theorem

Point Estimation

Method of Moments Estimation, Maximum Likelihood Estimation, Properties of Estimators, Minimum Variance Unbiased Estimators

Interval Estimation

Hypothesis testing for One-Sample Means

Hypothesis testing for Two-Sample and Multiple Sample Means

Linear Model Theory

Statistical Inference for Simple Linear Regression, Statistical Inference for Multiple Linear Regression

Introduction to Bayesian inference

Bayes theorem, Prior distribution, Posterior distribution, summaries of posterior distribution using its moments and quantiles

General ISU Policies for this Course

- **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.

- **Academic Dishonesty:** The class will follow Iowa State University's policy on academic dishonesty. Anyone suspected of academic dishonesty will be reported to the Dean of Students Office.

- **Discrimination and Harassment:** 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 dso-sas@iastate.edu, or the Office of Equal Opportunity and Compliance at 515-294-7612.

- **Dead Week:** This class follows the Iowa State University Dead Week policy as noted in section 10.6.4 of the Faculty Handbook.

- **Religious Accommodation** Iowa State University welcomes diversity of religious beliefs and practices, recognizing the contributions differing experiences and viewpoints can bring to the community. There may be times when an academic requirement conflicts with religious observances and practices. If that happens, students may request the reasonable accommodation for religious practices. In all cases, you must put your request in writing. The instructor will review the situation in an effort to provide a reasonable accommodation when possible to do so without fundamentally altering a course. For students, you should first discuss the conflict and your requested accommodation with your professor at the earliest possible time. You or your instructor may also seek assistance from the Dean of Students Office at 515-294-1020 or the Office of Equal Opportunity at 515-294-7612.

- **Contact Information** If you are experiencing, or have experienced, a problem with any of the above issues, email academicissues@iastate.edu