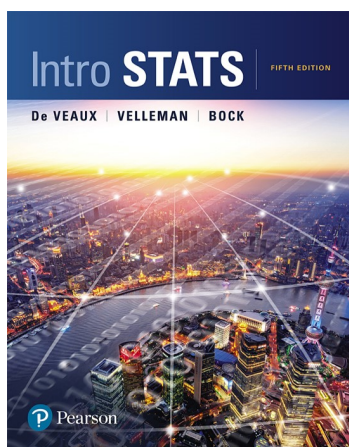


# ELEMENTARY STATISTICS AND INFERENCE

STAT:1020 / PSQF:1020 Lecture Section B

Fall 2021

<b>Instructor</b>	Prof. Ankenmann, S316 LC, 335-5420, <a href="mailto:robert-ankenmann@uiowa.edu">robert-ankenmann@uiowa.edu</a>
<b>Lectures</b>	9:30 – 10:20 am M, W, F; 40 SH Lectures will be recorded and posted on ICON later the same day
<b>Office Hours</b>	10:30 am – 12:00 noon, M, W, & F; or by appointment
<b>Department</b>	Psychological and Quantitative Foundations, S361 LC, 335-5579
<b>DEO</b>	Dr. Foley Nicpon, S361 LC, 335-5495
<b>Administrative Home</b>	The College of Liberal Arts and Sciences (CLAS) is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Other colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the <a href="#">CLAS Academic Policies Handbook</a>
<b>TA</b>	Stephanie Johnston <a href="mailto:stephanie-johnston@uiowa.edu">stephanie-johnston@uiowa.edu</a>
<b>Discussion Sections</b>	B21 9:30 – 10:20 am T 151 SH B22 9:30 – 10:20 am Th 151 SH B23 11:00 – 11:50 am T 151 SH B24 11:00 – 11:50 am Th 30 SH
<b>TA Office Hours</b>	TBA
<b>Textbook</b>	De Veaux, R. D., Velleman, P. F. & Bock, D. E. (2018). <i>Intro Stats (fifth edition)</i> . Boston, MA: Pearson.



- When students enrolled in the course, they were automatically registered for Pearson's **MyLab & Mastering** website, which includes access to the eText and a variety of other online resources (enrollment in MyLab & Mastering is mandatory for the completion of online homework assignments).
- Access Code: **WSDISE-BOREE-DIARY-KALPA-ALLOT-NURSE**
- Students have the opportunity to opt out of the course material during the beginning of the course (<https://teach.uiowa.edu/icon-direct-opt-out>), but their ability to participate fully in the course without these materials may be limited. No charge to the student's U-Bill will be made if the course is dropped during the Opt Out period.
- Students are free to purchase a loose-leaf copy of the textbook (available at the UI bookstore).

## Course Description

This course provides an overview of the logic and techniques involved in quantitatively analyzing and interpreting empirical data. Methods for displaying data graphically and for describing characteristics of data will be covered in the first part of the course dealing with descriptive statistics. The second part of the course includes topics in elementary probability theory and sampling, forming a basis for techniques of statistical inference. The problem of inference, attempting to make generalizations that go beyond the data at hand, is the focus of the third part of the course.

This is a *General Education* course in *Quantitative or Formal Reasoning*. Courses approved in this area have as their primary purpose the development of the analytical powers of the student as they might be exercised in presentation and evaluation of mathematical or other formal symbolic systems. Students will learn and practice methods of statistical reasoning. Students will also learn to evaluate arguments made in the symbolic system embodied in the course and will become familiar with its major concepts and ways of formulating questions.

- Course Requirements**
- readings (see schedule for textbook chapters)
  - exercises from textbook (for self study, and for review in discussion sections with the TAs); see **Recommended Textbook Exercises** (next page)
  - students are expected to attend/observe all lectures and discussion sections
  - 3 exams (open book). See **Course Schedule** for dates, times, and locations
  - 11 homework assignments. See **Homework Assignment Schedule** (below) for deadlines

**Discussion Sections** These are scheduled with the course TAs for the purpose of answering questions from lectures, demonstrating computer applications, and reviewing recommended textbook exercises. Discussion sections will meet first on August 24 & 26, 2021.

<b>Homework Assignment Schedule</b>	HW Assignment 1	September 5, 11:59 pm	Chapters 1, 2.1 – 2.3
	HW Assignment 2	September 12, 11:59 pm	Chapters 2.4, 2.5, 3
	HW Assignment 3	September 19, 11:59 pm	Chapters 4, 5.1, 5.2
	HW Assignment 4	September 26, 11:59 pm	Chapters 5.3 – 5.5, 6
	HW Assignment 5	October 10, 11:59 pm	Chapters 7, 8.1, 8.3, 8.5
	HW Assignment 6	October 17, 11:59 pm	Chapters 10, 11
	HW Assignment 7	October 31, 11:59 pm	Chapter 12
	HW Assignment 8	November 14, 11:59 pm	Chapter 14
	HW Assignment 9	November 28, 11:59 pm	Chapters 15, 16.3
	HW Assignment 10	December 5, 11:59 pm	Chapter 17
	HW Assignment 11	December 12, 11:59 pm	Chapter 18

**Attendance & Assignments**

- all homework assignments are due at 11:59 pm on Sunday; late submissions are accepted up until 11:59 pm on Tuesday (that is, two days later) with a 50% penalty on those questions answered after the Sunday deadline; there are no exceptions or extensions to these deadlines for any reason
- this is a 3-semester-hour course; therefore, students are expected to spend (on average) 6 additional hours of outside work per week (not including discussion sections or exams), for a total of 10 hours per week if lecture and discussion section times are included

## Course Grades

- final grades are based on the best 10 out of 11 homework assignments (2.5% each), and three exams (25% each)
- plus/minus grading will be used as follows:
  - A+ 95% - 100%
  - A 90% - 94%
  - A- 85% - 89%
  
  - B+ 80% - 84%
  - B 75% - 79%
  - B- 70% - 74%
  
  - C+ 65% - 69%
  - C 60% - 64%
  - C- 55% - 59%
  
  - D+ 50% - 54%
  - D 45% - 49%
  - D- 40% - 44%
  
  - F 0% - 39%
- students with an average homework assignment score exceeding 75% (based on the best 10 out of 11 homework assignments) will be eligible for borderline grade consideration for final grades
- absence from an exam must be cleared with Professor Ankenmann on or before the exam date
- any student who is absent from an exam must submit a completed *Student Absence Form* to Professor Ankenmann before being allowed to take a make-up (see <http://registrar.uiowa.edu/absence-class>)
- any unexcused absence from an exam will result in a score of zero with no opportunity for a make-up

## Recommended Textbook Exercises

Students are expected to know how to answer all of these exercises, even though they aren't scored/graded. Some of these questions are included in (or similar to) the homework assignments, and some are used as examples in lectures and/or discussion sections.

Chapter 1: 1, 7, 9, 21, 23, 25, 31, 33, 35, 37, 39

Chapter 2: 1, 3, 5, 9, 13, 15, 17, 21, 23, 35, 37, 39, 41, 43, 45, 47, 53, 55, 59, 61, 63, 65, 67, 71, 73, 79, 81

Chapter 3: 1, 3, 5, 9, 11, 15, 19, 23, 27, 29, 31, 33, 35, 37, 41, 43, 49, 51

Chapter 4: 1, 3, 5, 7, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33

Chapter 5: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57

Review (pages 154 – 162): 3, 5, 7, 15, 17, 19, 23, 25, 31, 33, 35 (a, c, d), 37

Chapter 6: 3, 5, 7, 11, 13, 15, 19, 25, 27, 29, 31, 33, 35, 37, 39, 45, 47

Chapter 7: 1, 3, 5, 7, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 67, 69, 75

Chapter 8: 1, 3, 5, 7, 9, 21, 23, 25, 27, 29, 37, 39, 41, 45, 47, 49, 51, 57, 61

Review (pages 307 – 318): 1, 3, 7, 9, 11, 15, 17, 21, 29, 31, 33, 43,

Chapter 10: 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45

Chapter 11: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 23, 27, 31, 47, 57

Review (pages 367 – 372): 1, 3, 5, 7, 9, 11, 13, 15, 17, 21, 23, 25, 27, 35, 39

Chapter 12: 3, 5, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 23, 27, 31, 33, 35, 37, 39, 41, 43, 51, 53, 57, 59, 61, 63, 65, 67, 69, 71, 73, 77, 81 (only a & b), Phones, Ammenities, Cards, Cards Again

Review (pages 533 – 535): 1, 3, 6, 15, 17 (only a and c), 20, 21, Technology Use on Campus

Chapter 13: 1, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53

Chapter 14: 5, 9, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37

Chapter 15: 1, 3, 5 (only b and c), 7, 9, 15, 17, 19, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43

Chapter 17: 1, 3, 9, 11, 13, 15, 23, 25, 27, 29, 31, 33, 37, 39, 49, 51, 53, 57, 59, 61, 63, 75, 77, 83

Chapter 18: 1, 9, 13, 23 (only a and b), 27 (only a and b), 29, 31, 33, 35, 39

Chapter 19: 1, 3, 5, 13, 17, 19, 23, 25, 27, 39, 41, 47, 49

### **ICON Direct Information**

- This class will be taught with electronic content. The course material is available in the ICON course site. Students may opt out of this content, but the consequences of doing so may affect their outcomes in this course.
- Students will lose access to any additional content the instructor might add to the eTextbook, such as links to other content; additional supplemental resources; and highlights, annotations, and any study tips the instructor may add to guide your engagement and learning in the course. ***Please consider that if you choose to opt out, you may not be able to earn course points or assignment grades associated with this content.***
- Students risk falling behind in the course if they have not acquired alternate versions of the same materials prior to the first day of the class.
- Faculty are not responsible for providing students with alternative materials or waiving course/class requirements.

## Elementary Statistics and Inference (Lecture Sections A &amp; B, Fall 2021)

STAT:1020 / PSQF:1020 Course Schedule

Professor Ankenmann

<u>DAY</u>	<u>DATE</u>	<u>TEXTBOOK ASSIGNMENT / CHAPTER (SECTION)</u>
UNIT 1 - EXPLORING DATA & RELATIONSHIPS BETWEEN VARIABLES (CHAPTERS 1 – 6)		
1	Aug. 23 M	1.1 – 1.4
2	25 W	2.1 – 2.2
3	27 F	2.3 – 2.4
4	30 M	2.5
5	Sept. 1 W	3.1 – 3.2
6	3 F	3.2 – 3.4
*	6 M	Labor Day—No Class
7	8 W	4.1 – 4.2
8	10 F	4.1 – 4.2
9	13 M	5.1 – 5.2
10	15 W	5.3
11	17 F	5.4 – 5.5
12	20 M	6.1 – 6.2
13	22 W	6.2 – 6.3, 8.3 – 8.5
UNIT 2 – LINEAR REGRESSION, GATHERING DATA, & PROBABILITY (CHAPTERS 7, 10 – 12)		
14	24 F	7.1 – 7.3
15	27 M	7.3 – 7.4
16	29 W	7.5, 8.1
	<b>30 TH</b>	<b>EXAM 1 (Chapters 1 – 6), W10 PBB, 6:30 – 8:30 pm</b>
17	Oct. 1 F	7.6 – 7.7, 8.2
18	4 M	10.1 – 10.7
19	6 W	11.1 – 11.3
20	8 F	11.4 – 11.6
21	11 M	12.1 – 12.3 (373 – 380 & 384 – 388)
22	13 W	12.3 (381 – 384)
23	15 F	12.4 – 12.5 (388 – 393)
24	18 M	12.5
25	20 W	12.6
UNIT 3 – CONFIDENCE INTERVALS & INFERENCE (CHAPTERS 13 – 15, 17 – 19)		
26	22 F	13.1 – 13.2
27	25 M	13.1 – 13.2
28	27 W	13.3
29	29 F	13.4 – 13.5
30	Nov. 1 M	13.6 & 14.1
31	3 W	14.1 – 14.2
	<b>4 TH</b>	<b>EXAM 2 (Chapters 7, 10 – 12), W10 PBB, 6:30 – 8:30 pm</b>
32	5 F	14.3 – 14.5
33	8 M	15.1 – 15.3
34	10 W	15.1 – 15.3
35	12 F	15.4 – 15.5, 16.3
36	15 M	15.4 – 15.5, 16.3
37	17 W	17.1 – 17.2
38	19 F	17.3
*		THANKSGIVING BREAK (Nov. 22 – 26)
39	29 M	17.4 – 17.5
40	Dec. 1 W	18.1 – 18.2
41	3 F	18.2 – 18.3
42	6 M	19.1
43	8 W	19.4
44	10 F	Review (if time permits)
<b>Exam Week</b>	<b>Dec. 13 – 17</b>	<b>EXAM 3 (Chapters 13 – 15, 17 – 19) Date, Time, and Location TBA</b>

**COLLEGE OF LIBERAL ARTS AND SCIENCES**  
**Information for CLAS Undergraduates**  
**Fall 2021**

**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%A0-0>).

**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/>.

## **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 (SGO), 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](mailto: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. UCS 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/>).