



THE OHIO STATE UNIVERSITY

COLLEGE OF ARTS AND SCIENCES

Statistics 6510

Survey Sampling Methods

Fall 2026

NOTE: Syllabus is subject to change as the semester evolves.

Instructor: Dr. Elizabeth A. Stasny, 319 Cockins Hall, stasny.1@osu.edu

Zoom Office Hours (Stasny): 12:30 – 1:30 Tuesdays and immediately following each class

Course Assistant: Mr. Xinyun Chen, chen.13564@osu.edu

Office Hours (Chen): 12:40-1:40 in CH132 Thursdays

Textbook: Lohr, Sharon L., "Sampling: Design and Analysis", Chapman and Hall/CRC; 2019. (This is a reprinting of the 2nd edition published by Brooks/Cole; 2010.) The unlimited user ebook is available at <https://doi-org.proxy.lib.ohio-state.edu/10.1201/9780429296284>. Be sure you are looking at the correct textbook for assignments. Supplemental reading assignments may be posted on the course website.

Other Sampling References:

Cochran, *Sampling Techniques*

Schaeffer, Mendenhall, and Ott, *Elementary Survey Sampling*

Kish, *Survey Sampling*

Hanson, Hurwitz, and Madow, *Sample Survey Methods and Theory*, Vols. I and II

Groves, Fowler, Couper, et al., *Survey Methodology*

Prerequisites: An excellent background in the material covered in Statistics 5301 or Public Health Biostatistics 6212. Students should be knowledgeable about and comfortable with discrete data distributions, expected values, variances, confidence intervals, and regression. Many of these topics are reviewed in Appendix A of the course textbook.

Course Requirements: You are responsible for all material covered in class, in assigned readings, and on homework assignments. You are expected to attend all classes*. **Attendance is mandatory* for all class meetings at which students make presentations.** Reflection papers will be assigned after class group discussions and student presentations.

Course delivery:

Classes will be delivered in person from 3:00-4:20 MW in 260 Baker Systems Engineering. In case of an unforeseen situation, class may be held synchronously over Zoom.

Use of Electronic Devices during Class: Any recording during class, using video, audio, or still photography, is permitted **only with prior permission** from the instructor.

Computing: I will use the Statistical package R for my computing needs in the course. R is freely available for most operating systems (<http://www.r-project.org/>). If you are not already familiar

with R, there are online tutorials available. I recommend getting started with swirl. This site <http://swirlstats.com/students.html> has instructions for downloading R, RShiny, and opening the swirl tutorial system. Once inside, you can learn the basics of working with R via the tutorial "R Programming: The basics of programming in R." Alternately, you may use any statistical package you prefer for the work in this course; I may not be able to help you with the package you choose, however.

Homework: Assignments will be due approximately weekly. It is your job to ensure that your homework is easy to grade. Any computer output must be edited and annotated; graphs and plots must be clearly labeled and discussed in the text of the homework problem. Problems that are out of order or with parts not clearly identified may not receive full credit.

Additionally, reflection papers of 250-300 words will be due the class period after the 2-3 classes in which we have group discussions and after class presentations for which you are not a presenter. These will count as homework assignments for determining course grades.

No late assignments of any type will be accepted*.

Although you certainly may discuss homework with others outside of class, your submissions must be your own and should demonstrate your personal understanding of the problems.

Midterm: On or about Wednesday, October 21, during the usual class time. The exam is closed book and closed notes, but students may use an 8.5" x 11" sheet of handwritten notes during the exam.

Use of AI for coursework

Although AI is a fine tool for helping with routine tasks, my goal for this class is that students develop skills in understanding, interpretation, and explanation of survey methodology and analysis of survey data. Using AI does not generally help you develop these sorts of skills. Thus, for your assignments in this class, using AI for text generation, automated essay writing, or to answer assignment questions is prohibited. If students use AI to aid in computer coding, they need to verify output for accuracy, as AI tools does make mistakes. Also note that feeding private course materials or copyrighted content into external AI tools without permission may violate university rules or laws.

Ohio State's academic integrity policy

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

Class Presentations: The final exam for the course is an approximate 15- to 20-minute class presentation by each student on an appropriate paper, report, or other similar document. I will post a list of suggested papers on Carmen but students are welcome to suggest other papers or topics. The topics include Political Polling, the Decennial Census, Survey Biases, Questionnaire Design, Cognitive Aspects of Surveying, Web-based Surveys, and Complex Surveys. Requirements for

presentations will be covered as the class progresses. Presentation topics must be decided by October 5.

The following dates are tentatively reserved for class presentations (**attendance is required***). I will assign students to a date based on the topic of papers they choose:

October 28 (Any Political Polling presentation(s) since this is the week before the election)
November 9
November 23
December 7
December 11 (During the Final Exam time of 12:00-1:45)

Grades: The final numerical grade will be determined as follows:

Homework (lowest grade dropped)	25%
Midterm Exam	35%
Class Presentation	35%
Class Participation	5%

Copyright disclaimer

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be followed for copying, retaining, or disseminating materials outside of the course.

Statement on Title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories. If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator at titleIX@osu.edu or 614-247-5838.

Accessibility accommodations for students with disabilities

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; 098 Baker Hall, 113 W. 12th Avenue.

Your mental health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you, or someone you know, are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614- 292-5766. You can reach an on call counselor when CCS is closed at 614-292-5766; 24 hour emergency help is also available through the National Suicide and Crisis Lifeline by calling or texting 988.

Other

OSU's policy statement on accommodations for religious holidays may be found at <https://oaa.osu.edu/religious-holidays-holy-days-and-observances>.

OSU's policy statement on Artificial Intelligence and Academic integrity may be found at <https://ugeducation.osu.edu/recommended-syllabus-statements-and-policies>.

* Obviously, if you are ill or caring for someone who is ill, we will make alternate arrangements. Please contact me by email as soon as possible and keep me apprised of your situation.

Tentative Schedule of Topics

(Actual schedule will evolve as the term progresses and class presentations are scheduled)

Introduction to sampling and its history	(2 classes)
Simple Random Sampling	(3 classes)
Estimating population means, proportions and totals	
Variances and interval estimates	
Sample size determination	
Stratified Sampling	(4 classes)
Estimating population means, proportions and totals	
Variances and interval estimates	
Designing good strata	
Sample size and sample allocation	
Sample-based weights	
Estimating a Ratio and Ratio Estimation	(2 classes)
Estimating population means, proportions and totals	
Variances and interval estimates	
Cluster Sampling	(5 classes)
Estimating population means, proportions and totals	
Variances and interval estimates	
Good versus practical clustering	
Single-stage, equal and unequal cluster sizes	
Two-stage cluster sampling	
Sample-based weights	
Introduction to Questionnaire Design and Question Writing	(2 classes)
Nonsampling Errors	(3 classes)
Frame Design and Error	
Response Bias	
Nonresponse	
Other sources of error	
AI and sample surveys	(1 class)
Ranked Set Sampling	(1 class)

Class Schedule For My Planning Purposes – Subject to Change as Needed

Monday	Tuesday	Wednesday	Thursday	Friday
Aug. 24	25 First Day of OSU classes	26	27	28
31	Sept. 1	2	3	4
7 Labor Day	8	9	10	11
14	15	16	17	18
21	22	23	24	25
28	29	30	Oct. 1	2
5 Presentation Paper Selection Due by Today	6	7	8	9
12	13	14	15 Fall Break	16 Fall Break
19	20	21 Midterm	22	23
26	27	28 Presentation(s)	29	30
Nov. 2	3 Election Day	4	5	6
9 Presentation(s)	10	11 Veterans' Day	12	13
16	17	18	19	20
23 Presentation(s)	24	25 Thanksgiving Holiday	26 Thanksgiving Holiday	27 Thanksgiving Holiday
30	Dec. 1	2	3	4
Dec. 7 Presentation(s)	8	9 Last Day of Classes	10	11 Final Exam Presentation(s) 12:00 – 1:45