SOC 201: Introductory Sociological Statistics

Syllabus, Spring 2023

Class Time	3:00 – 4:15 on Mondays and Wednesdays
	311 Behavioral Sciences Buildings

Instructor **Mahesh Somashekhar**
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Office: 4170 Behavioral Sciences Building
Drop-In Office Hours: 12:00 – 1:15 on Mondays (In-Person & Virtual)

Teaching Assistants

Jessie Miller (Co-Instructor)	**Nancy Toure (Grader)**
Sections: AB, AB2	Sections: n/a
OH: 9 – 11am on Tuesdays (Virtual)	OH: 2 – 3pm on Wednesdays (virtual)
Email: jmill66@uic.edu	Email: ntoure2@uic.edu

Course Webpage Available on Blackboard

Contact For simple questions, email is the best way to reach me and the TA. We will respond to email messages within 72 hours. For more involved questions or discussions, please use our drop-in office hours.

Course Description and Objectives:

This course is an introduction to how social scientists use and interpret statistics. Statistics is both a tool and a language that helps people describe large amounts of information. As a tool, statistics allows analysts of the social world to simplify and organize quantitative data into coherent, rigorous observations. As a language, statistics enables social observers to talk about large-scale data in clear and precise ways. The types of data analyzed by statisticians come from many sources—television, social media, the government, marketing firms, even regular interactions with other people in social settings. A mastery of statistics can help students make useful contributions to their current and future employers, the social causes they fight for, and the communities of which they are a part.

The overall objective of the class is twofold. First, the course aims to provide you with the ability to use statistical tools to critically evaluate data. Second, the course teaches you to be an analytical consumer of information in the mass media. By the end of this course, you will be able to:
1. Define real world questions and problems in statistical terms.
2. Solve statistical problems.
3. Analyze and interpret the meanings of statistical solutions in relation to real world issues.
4. Use Google Sheets to conduct statistical analyses.

Prerequisites:

This is not a mathematics course, but you are expected to be able to do arithmetic. You will also be expected to be able to think through problems clearly and communicate your results. A familiarity with

spreadsheet software is helpful but not necessary. (An easy online tutorial to learn Google Sheets is here: http://shorturl.at/AKM46.) This course is designed to help you practice these skills. To be fully prepared for the course, you should have taken SOC 100 or SOC 105; and either MATH 090 or MATH 092 or MATH 118 or the equivalent. With my approval, you may be able to take the course as well.

Required Equipment:

Text: There are two required textbooks for the course:

Diez, David, Christopher Barr, and Mine Cetinkaya-Rundel. 2019. OpenIntro Statistics (4th Edition). (https://leanpub.com/openintro-statistics).

Illowsky, Barbara and Susan Dean. 2022. Introductory Statistics. (openstax.org/details/introductory-statistics).

These textbooks are available for free online. Although they are free, please donate some money when downloading the textbooks. **Without users' support, resources such as these texts will no longer be available, and instructors like me will be forced to send you to the bookstore to buy a physical textbook that costs upwards of $250. So please be nice and donate what you can.** Each textbook emphasizes different aspects of statistics, so you can learn concepts from class more thoroughly.

Calculator: You will need a calculator that can add, subtract, multiply, divide, and take square roots. It is wise to bring this device to class every day because we will do many in-class activities that require them.

Access to Google Sheets: In order to access Google Sheets, you will require an account through Google. All UIC students are entitled to a free Google Workspace, information about which can be found at http://teaching.uic.edu/ed-tech/virtual-collaboration/google-workspace/.

Assignments and Grading:

Your course grade will be based on the following:

- **Homework (33%)**
  There will be 11 homework assignments. Each will be posted on the course website. All assignments are due on Saturdays at 11:59 pm (unless specified otherwise in the syllabus) and must be turned in through the course website. The only formats that will be accepted for homeworks are Microsoft Word, rtf, txt, or pdf. Late homework assignments will be accepted up to 2 days after the due date, and 20% will be deducted from your assignment grade for each day it is late. Homework that is more than 2 days late will not be accepted. For the final grade, your lowest score will be dropped, and your highest score will be doubled.

- **Midterm 1 (10%), Midterm 2 (10%), and Final Exam (25%)**
  There will be three exams administered over the course of the semester, two midterms and one final. The midterms will be non-cumulative, but for the final, you will be tested on material covered during the semester. Exams will include a variety of question types including multiple-choice, fill-in-

the-blank, and problems requiring calculations and interpretation. You will be allowed one 8.5" x 11" cheat sheet on each exam (front and back), and you will be given a set amount of time to finish the exam. No make-up exams will be administered except under extreme circumstances and with approval *prior to* the scheduled examination time.

- **Laboratory Assignments (18%)**
  Laboratory assignments will include practice problems and lessons on Google Sheets, all of which will be completed during laboratory sections. If you do not show up within the first 30 minutes of lab section, you will not get credit for your lab assignment that day. To account for circumstances, the lowest two grades on laboratory assignments will be dropped when calculating your final grade.

- **Participation (4%)**
  This course includes extensive in-class activities where you will practice working through statistical problems and participate in analytical discussions of your results. Your participation in these activities will count towards your grade. On 7 randomly determined class days, your work from these in-class activities will be turned in. You will receive one participation point for each of the in-class activities that you turn in. To receive full credit for participation in the course, you must turn in at least 4 in-class activities. In other words, if you miss three in-class activities, you still get full participation credit. More than three absences will decrease your participation grade.

Academic Accommodations:

The University of Illinois at Chicago is committed to maintaining a barrier-free environment so that students with disabilities can fully access campus programs, courses, services, and activities. Students with disabilities must inform the instructor of the need for accommodations. Those who require accommodations for access and participation in this course must be registered with the Disability Resource Center. Please contact the DRC at http://drc.uic.edu/.

Grievance Procedures:

UIC is committed to the most fundamental principles of academic freedom, equality of opportunity, and human dignity involving students and employees. Freedom from discrimination is a foundation for all decision making at UIC. Students are encouraged to study the University's "Nondiscrimination Statement". Students are also urged to read the document "Public Formal Grievance Procedures". Information on these policies and procedures is available on the University web pages of the Office of Access and Equity: http://oae.uic.edu/

Things You Should Do to Succeed in This Class:

This course tries to engage you in active rather than passive learning. That means it is not a standard lecture course. You will be expected to do all in-class activities and regularly participate in lab sections. The following things will help you to succeed in this kind of course:
1. Read and study the assigned sections of the text *before* class. This is where you will learn the content of the course.
2. Participate often in laboratory section assignments and in-class activities. This is where you will learn how to use the content in the textbooks.

3. Do homework assignments soon after class. Doing assignments soon after you have read the textbooks and participated in class activities will help solidify your learning and ensure better retention.
4. Think about the numbers, statistics and graphs that you see on the internet, in the newspaper, on TV, or in other classes. What do they tell you about the world? How do they relate to what we have been studying in this class? How could they be misinterpreted if you did not have statistical training?
5. Most importantly, ASK QUESTIONS. If you are confused, others likely are too. You will be doing your classmates a favor, and make it easier to keep up, by asking the question early.

Academic Honesty:

All students are expected to do their own work on all assignments and exams. Students representing the work of others as their own or cheating in any other way will receive a zero for the assignment in question and may fail the course or be referred to the college for disciplinary action.

COVID-19 Policy:

This class will be taught in-person, and lectures will be recorded for later viewing. Exams will be administered in person. All students must wear facemasks while in the classroom, and unvaccinated students must adhere to university policies regarding mask wearing and regular saliva testing. Students will physically distance whenever possible. Any students who do not follow these rules will be asked to leave the classroom. Please stay home and watch the recordings if you have a temperature or show other symptoms of COVID-19. The instructor and TA are happy to answer questions you have about content on the recordings after class time.

Schedule of Topics and Required Readings:

Dates listed below are subject to change. Changes will be announced in class and/or the class website

Dates	Topics	Required Reading	Due Dates and Notes
1/9 **(Week 1)**	Introductions to the Course and Overview of Statistics	None	No-Credit Lab on Using Google Sheets This Week
1/11	Producing Data: Surveys and Sampling	Diez, 1.1 – 1.3	*No Class on 1/16*
1/18 **(Week 2)**	Producing data: Experiments	Diez, 1.4	Lab #1 This Week

Assignment 1 due by 11:59 pm on 1/21

Bring an Example of a Good or Bad Graph to Class on 1/23 |

1/23 (Week 3)	Graphical Techniques	Illowsky, 2.1.3 – 2.4	Lab #2 This Week
1/25	Frequency tables	None	Assignment 2 due by 11:59 pm on 1/28
1/30 to 2/1 (Week 4)	Measures of Central Tendency and Variability	Diez, 2.1 Illowsky, 2.5 – 2.6	Lab #3 This Week Assignment 3 due by 11:59 pm on 2/4
2/6 (Week 5)	Probability	Diez, Ch. 3 Illowsky, 3.0 – 3.3, 4.1	Lab #4 This Week
2/8	Normal Distributions	Diez, 4.1 Illowsky, 6.0 – 6.2	Assignment 4 due by 11:59 pm on 2/11
2/13 (Week 6)	Review or Jump Start to Next Section	None	No Lab This Week
2/15	**MIDTERM #1**		
2/20 (Week 7)	Sampling Distributions	Diez, 5.1 Illowsky, 7.0 – 7.3	Lab #5 This Week
2/22	Confidence Intervals	Diez, 5.2 Illowsky, 8.0 – 8.1, 8.3	Assignment 5 due by 11:59 pm on 2/25
2/27 to 3/1 (Week 8)	Hypothesis Testing for One Sample	Diez, 5.3 Illowsky, 9.0 – 9.2	Lab #6 This Week Assignment 6 due by 11:59 pm on 3/4
3/6 (Week 9)	t-Distributions	Diez, 7.1 Illowsky, 8.2	Lab #7 This Week
3/8	Hypothesis Testing for Two Samples	Diez, 7.2 – 7.3 Illowsky, 10.0 – 10.2	Assignment 7 due by 11:59 pm on 3/11
3/13 (Week 10)	Review or Jump Start to Next Section	None	No Lab This Week
3/15	**MIDTERM #2**		*No Class on 3/20 and 3/22; No Lab on 3/24*

3/27 to 3/29 **(Week 11)**	Scatterplots and Correlation	Diez, 2.1.1, 8.1	<u>Lab #8 This Week</u> Assignment 8 due by 11:59 pm on 4/1 *No Class on 4/3 and 4/5; No Lab on 4/7*
4/10 **(Week 13)**	Bivariate Regression	Diez, 8.2 Illowsky, 12.6	<u>Lab #9 This Week</u> Assignment 9 due by 11:59 pm on 4/15
4/12 to 4/17 **(Week 14)**	Multiple Regression	Diez, 9.1 – 9.2	<u>Lab #10 This Week</u>
4/19	Two-Way Tables	Illowsky, 11.0 – 11.5	Assignment 10 due by 11:59 pm on 4/22
4/24 **(Week 15)**	Final Exam Review		*No Class on 4/26* <u>Lab #11 This Week</u> Assignment 11 due by 11:59 pm on 4/29
TBA	**FINAL EXAM**		