

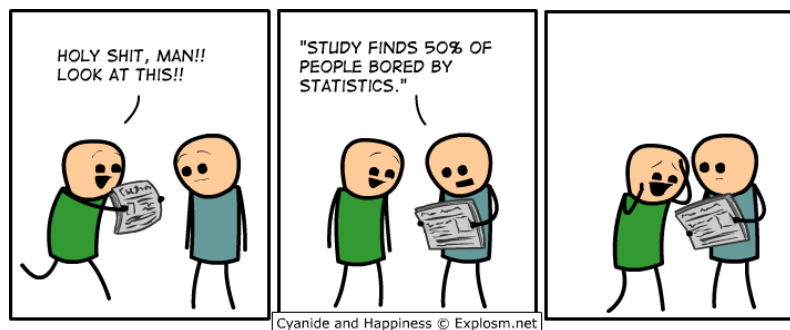
Sociology 210
The Power of Numbers - Statistics in Sociology
Colorado State University
Fall 2022

Professor: Dr. Pat Hastings (Pat.Hastings@colostate.edu). Office hours: Monday and Friday, 2-3pm, and by appointment in Clark B248 or online

GTA: Jacob DeBruin (Jacob.DeBruin@colostate.edu). Office hours: Wednesday 3-4pm, Friday 1-2pm, and by appointment in Clark B271 or online

Class: Mon/Wed/Fri, Noon-12:50pm in Clark C358

Canvas website: <https://colostate.instructure.com/courses/152889>



Overview

This course helps students think quantitatively about sociological questions, understand the basic logic of statistical inference, and perform simple quantitative analyses. Students will learn to be critical consumers of the statistics they encounter in both academic work and everyday life, and will build a strong foundation for future statistical learning. Topics will be illustrated through relevant sociological examples and applications, and will be reinforced through quizzes, assignments, and exams.

Learning Goals

- Understand how sociological questions can be answered with quantitative data.
 - Gain familiarity with the basic concepts, methods, and techniques of statistical analysis in sociology, including descriptive statistics, measures of central tendency and variability, probability, statistical inference and hypothesis testing, correlation, and multiple regression.
 - Develop skills for thinking critically about the statistics encountered in academic research and everyday life.
 - Build a strong foundation to excel in future social science quantitative methods courses or any other arena where it is important to make sense out of quantitative evidence.
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Course Structure and Evaluation

The course is structured around weekly modules. The modules are described in the schedule below. Each module will typically include notes, readings, videos, a quiz, and an assignment. Attendance to lectures is important and expected, but it does not directly affect your grade. Your grade will be based on: Assignments (40%), Quizzes (25%), Exam 1 (10%), Exam 2 (10%), and the Final Exam (15%)

Quizzes: Each module will have a multiple-choice quiz that you will complete on Canvas. These will help to ensure that you have completed and understood the readings and have watched the videos assigned to each module. The quizzes will be untimed and open-book, and they will be graded immediately after being submitted so that you can assess your comprehension. **Quizzes will be due by noon (before class) on Wednesdays.**

Assignments: Each week will have an assignment to put into practice the concepts you are learning. You are welcome to work with others as you complete the assignments, but write up your own assignment in your own words. Please upload the completed assignment to Canvas as a single PDF or MS Word Document. Additional instructions are included in each assignment. Feedback will be provided for each assignment. **Assignments will be due Friday at midnight.**

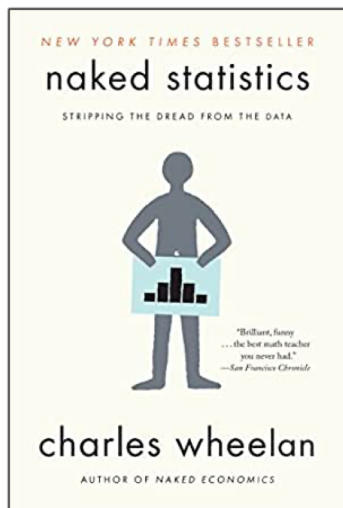
I understand that many factors may affect when you can do the work for this class. The assignments will have an additional 24-hour grace period during which they will still be accepted without penalty (e.g., they will be accepted without penalty until midnight Saturday). This policy may be adjusted depending as the semester progresses. Beyond that, I will try to be as flexible as possible, but without prior approval late work will receive a 20% penalty for each week (or part of a week) that it is overdue. If you know something is coming up, talk to me before things are due or as soon as you can.

Exams: The three exams will be given to evaluate your understanding of the main ideas and concepts, not how well you can memorize facts. You may use your book, readings, notes, and a calculator on the exams, but you cannot obtain help from others. The exams will be cumulative, but mostly focused on new material.

Missing class: There is no explicit attendance or participation component to your grade. However, the content in class is absolutely critical to your success on the assignments and exams (and, therefore, your grade). I understand there are completely justifiable reasons why you must miss class. **Classes are being recorded on Echo 360, and I will share a class recording with you up to twice per semester, no questions asked. To receive the recording, please email me and the course GTA after the class you miss.** However, please note the recording quality is highly variable and recordings are not available for some time after class. If you have to miss more than two times, please be in touch and we can discuss your situation.

Numeric grade	Letter grade
97.01-100	A+
92.01-97	A
89.01-92	A-
86.01-89	B+
82.01-86	B
79.01-82	B-
76.01-79	C+
69.01-76	C
59.01-69	D
below 59	F

Final Grades: Grades will be assigned on an A-F, +/- system (fractions of a percent will be rounded up to the nearest whole number) as described in the table. If you have any issues or concerns with your grades, contact me as soon as possible. Incompletes will only be granted in exceptional circumstances.



Readings and Calculator

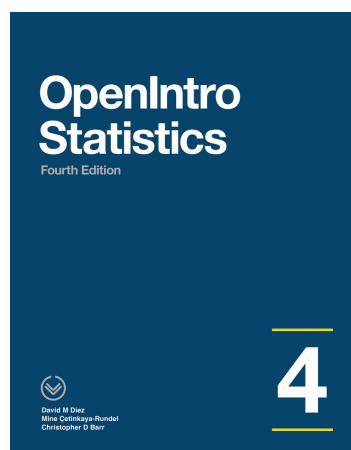
There are two books used in this course:

The first, which you will read almost in its entirety is an inexpensive book that is not a textbook, but describes statistics in a simple(r) way to help you focus on the purposes of statistics. As such, the class material will be a slightly more technical than the book.

Naked Statistics: Stripping the dread from the data

Wheelan, Charles. 2013. W. W. Norton & Company.

<https://www.amazon.com/Naked-Statistics-Stripping-Dread-Data/dp/039334777X/>



The second book we will use some is a free statistics book that is quite a bit more technical than this class, but covers some of the more important concepts and calculations we will do:

OpenIntro Statistics (4th edition).

David Diez, Mine Cetinkaya-Rundel, and Christopher D Barr. 2022.

<https://www.openintro.org/book/os/>

I have posted a PDF copy on Canvas. It is also possible to buy a paperback version if you like paper books.

All other materials for the course (readings, notes, videos) will be posted on Canvas.

You will need a simple calculator that can take the square root of a number. You do not need a graphing calculator. Your smartphone will probably work, but if you want to buy one: here's one that costs just \$6: <https://www.amazon.com/Casio-SL-300SV-Standard-Function-Calculator/dp/B000UUQTKA>

How Do I Learn This Stuff?

Since this is a course about data and statistics, it will likely feel different from other sociology courses you have taken. Here is some advice:

- Most of the material is cumulative, so it is **absolutely essential that you keep up with the course material. If you find yourself falling behind, ask for help!**
- **Do ALL the readings and watch ALL the videos.** These are not “supplemental” to my lectures and notes, but in fact are meant to be an integral part of the course. My lecture material assumes that students have already completed the appropriate readings and videos, and there are specific questions from them on the quizzes.
- Being good at statistics requires thinking through how to solve problems. Statistics cannot be learned simply by reading a book or listening to a lecture. You should not expect to really understand the material until after you have completed the relevant assignments. **You can also learn a great deal (and save some time!) by working with others on the assignments.**

- Learning to do statistics is in many ways like learning a language. It gets easier the more you use it. **Start the assignments early so you have time to work on them in multiple sessions** and so you can get help if you need it.
- Finally, know that I am aware that many of you are dealing with more challenging situations– including family responsibilities, mental and physical health issues, precarious housing, and unstable work schedules. **My hope is that this class is enjoyable and useful to you, without being a tremendous burden. If there are external factors that are detrimentally affecting your performance in this class, please feel free to let me know** and I will take that into account as well as I can.

COURSE SCHEDULE

The will likely evolve as the course progresses. Updates will be made through announcements in class and on Canvas.

Module	Week of	Topic(s)
1	8/22	Here we go! What's statistics? What's data?
2	8/29	Measuring the "middle" and "spread" of a data distribution: mean, median, mode, range, standard deviation.
3	9/5 (no class Mon, 9/5)	Relating two variables: correlation.
4	9/12	Probability and contingency tables
5	9/19	Expected values of and applications (and misapplications) of probability.
	9/26	Synthesis and Exam 1 (9/30)
6	10/3	Good data. Bad data. Normal (distribution) data.
7	10/10	The sampling distribution and Central Limit Theorem: this is where the magic happens.
8	10/17 (no class Fri, 10/21)	Inference: making claims about a population from a sample.
9	10/24	Polling: applications of inference.
10	10/31	Regression with two variables: prediction and explanation.
	11/7	Synthesis and Exam 2 (11/11)
11	11/14	Multiple regression: crush the confounders and feel the power!
	11/21	THANKSGIVING BREAK
12	11/28	Problems with regression, especially with p-values. Reading "real" research.
13	12/5	Data management and analysis: wait, we can just do all this with a computer?
	12/12	Final Exam (Monday, 12/12 at 4:10-6:10pm)¹

¹ <https://registrar.colostate.edu/final-exams/>

Other Important Matters

In-Class Decorum: Please be prepared to give the class your full concentration. Avoid checking email/social media/etc. during class time. If it is distracting, I will ask you to stop (which is awkward for everyone). Even if you do it stealthily, you are distracting yourself, and doing well in this course will likely require your full attention during class. Colorado State University has stated five Principles of the Community: inclusion, integrity, respect, service and social justice (<http://diversity.colostate.edu/principles-of-community/>). Your conduct in this class should adhere to these to help us generate an open, tolerant, and respectful learning environment that we can all flourish in.

COVID-19: All students are expected and required to report any COVID-19 symptoms to the university immediately, as well as exposures or positive tests (even home tests).

- If you suspect you have symptoms, or if you know you have been exposed to a positive person or have tested positive for COVID (even with a home test), you are required to fill out the COVID Reporter (<https://covid.colostate.edu/reporter/>).
- If you know or believe you have been exposed, including living with someone known to be COVID positive, or are symptomatic, it is important for the health of yourself and others that you complete the online COVID Reporter. Do not ask your instructor to report for you.
- If you do not have internet access to fill out the online COVID-19 Reporter, please call (970) 491-4600.
- You may also report concerns in your academic or living spaces regarding COVID exposures through the COVID Reporter. You will not be penalized in any way for reporting.
- When you complete the COVID Reporter for any reason, the CSU Public Health Office is notified. Students who report symptoms or a positive antigen test through the COVID Reporter may be directed to get a PCR test through the CSU Health Network's medical services for students.

For the latest information about the University's COVID resources and information, please visit the CSU COVID-19 site: <https://covid.colostate.edu/>.

Communication: Communication will be critical for our collective success. In general, I am happy to answer simple questions via email or Canvas messages. I check email/Canvas frequently, but feel free to reach out again if you don't hear from me within 24 hours. If an issue is complex, I will ask that we set up a time to meet. You can also speak with me before or after class.

Office hours: I encourage you to use my office hours to discuss issues you may face or if you simply need help with the material and assignments. I am also happy to meet with you at a different time that works better for you (it's easiest if you suggest some times when you reach out). Likewise, the course GTA is available for office hours. Please email either of us to arrange a meeting if the posted office hours do not work.

Copyrighted Course Materials: Please do not share material from this course in online, print, or other media. Course material is the property of the instructor who developed the course. Materials authored by third parties and used in the course are also subject to copyright protections. Posting course materials on external sites (commercial or not) violates both copyright law and the CSU Student Conduct Code. Students who share course content without the instructor's express permission, including with online sites that post materials to sell to other students, could face appropriate disciplinary or legal action.

Academic Integrity: This course will adhere to the CSU Academic Integrity Policy as found on the Student Responsibilities page of the CSU General Catalog (<https://catalog.colostate.edu/general-catalog/policies/students-responsibilities/#academic-integrity>) and in the Student Conduct Code (<https://resolutioncenter.colostate.edu/wp-content/uploads/sites/32/2018/08/Student-Conduct-Code-v2018.pdf>) Do your own work. Don't cheat. If you are unsure what is permissible, please speak with the instructor. Violations will result in a grading penalty and be addressed through the appropriate University mechanisms.

Accommodations: If you are or think you are a student with a disability or chronic health condition, please contact the Student Disability Center (SDC) at (970) 491-6385 (<https://disabilitycenter.colostate.edu/>), located in TILT 121 and they will work with you to develop appropriate accommodations. I will not question your disability or your need for accommodation; however, I will need an accommodation letter provided by the SDC prior to implementation. Once you have your letter, please meet with me to further discuss your needs.

Title IX: If you have experienced sexual harassment, sexual assault, dating violence, domestic violence, and/or stalking, know that you are not alone. Confidential victim advocates through the Victim Assistance Team in the Women and Gender Advocacy Center are available 24 hours a day, 365 days a year to provide support at 970-492-4242. For full information about reporting sexual harassment, sexual assault, dating violence, domestic violence, stalking and/or retaliation please go to the Office of Title IX Programs and Gender Equity (<https://titleix.colostate.edu/title-ix/reporting-options/>).

Students Experiencing Distress: CSU is a community that cares. You are not alone. CSU Health Network Counseling Services has trained professionals who can help. Your student fees provide access to a wide range of support services. Call Counseling Services at (970) 491-6053, and they will work together with you to find out which services are right for you. Visit <https://health.colostate.edu/about-counseling-services> to learn more and <https://health.colostate.edu/mental-health-resources/> for additional student mental health and well-being resources. If you are concerned about a friend or peer, use Tell Someone by calling (970) 491-1350 or visiting <https://supportandsafety.colostate.edu/tell-someone/> to share your concerns with a professional who can discreetly connect the distressed individual with the proper resources. Rams Take Care of Rams. Reach out and ask for help if you or someone you know is having a difficult time.

Other resources for...

- Religious Accommodations: <https://studentaffairs.colostate.edu/resources/resources-faculty-staff/administrative-information/religious-accommodations/>
- Undocumented students: <https://undocumented.colostate.edu>
- Food insecurity: <https://lsc.colostate.edu/slice/community-engagement/rams-against-hunger/>