Sociology 314
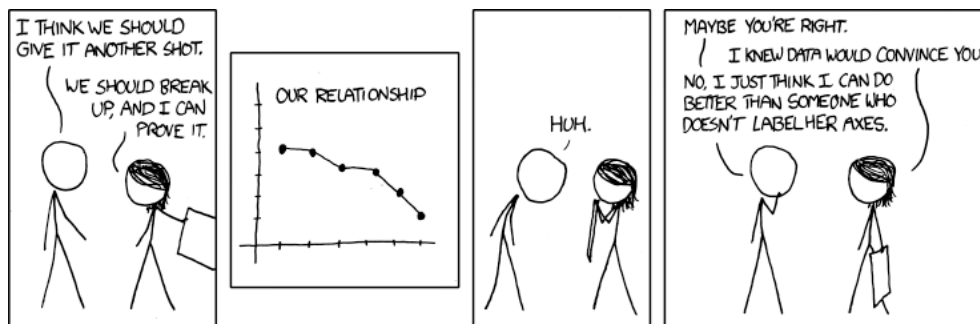## Applications of Quantitative Research
Colorado State University
Fall 2022

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

GTA: Juliet Seibel (juliets@rams.colostate.edu). Office hours: Monday and Wednesday 2-3:30pm, and by appointment in Clark B269 or online

Class: Mon/Wed/Fri, 1-1:50pm in Clark C141

Canvas website: https://colostate.instructure.com/courses/152643

Overview
In this course students will develop applied skills in the areas of quantitative data acquisition, cleaning, management, and analyses. Quantitative data is an essential component of sociological research. This course teaches students how to apply their theoretical understanding of data analysis by training them to prepare and work with real sociological data. Using a statistical software package, students will clean, merge, and manage data from various sources, perform quantitative analyses with these data, and present their data and results through tables and figures. This course trains social science students to be informed and critical users of quantitative data and equips them with skills that will be widely applicable in settings ranging from human services, to business, to research.

Learning Goals
By the end of the course students will learn:
• To prepare data for analysis through data wrangling.
• To analyze data and interpret the results.
• To visualize data to identity patterns and effectively convey information.
• To answer sociological questions with quantitative data.
• To think critically about the statistics encountered in academic research and everyday life.

Prerequisites

SOC 210 (or similar quantitative analysis course) and SOC 311 (or equivalent research methods course). SOC 311 may be taken concurrently.

Course Structure and Evaluation

Your grade will be based on: Homeworks (40%), Project 1 (15%), Project 2 (15%), Project 3 (20%), and course participation (10%).

Homework: Most weeks will have a short homework to put into practice the concepts you are learning. You are welcome to work with others as you work on the assignments, but you must complete and submit your own assignment. Please upload these to Canvas following the instructions included in each assignment. Feedback will be provided for each assignment. **Assignments will be due by midnight (or shortly thereafter) on Tuesdays.** New homeworks will be assigned on Fridays.

Projects: There will be three projects (but no big, scary final project or exam!). These projects will give you the opportunity to more deeply put into practice the tools that you will be learning in the class. Some portion of class will also be devoted to working on these assignments, both individually and collaboratively. Each project will be due in class on the date specified in the Course Outline. As the semester progresses, more information will be given about each project when it is assigned.

Late work (on homeworks and projects): The due dates are intended to give you wide flexibility in when to complete work–please don't wait until the last minute. In general, late work will receive a 10% penalty per day (or part of a day) that it is late. That said, better late than never! If there are extenuating circumstances that we should take into account, please talk with me.

Participation and attendance (and lack thereof): Learning occurs the best when it is interactive. Please be active in class discussion and group work. Ask questions and answer questions! I will record attendance for many classes. I will not deduct points for occasionally missing class; however, rare (or no) attendance will affect your participation grade. Moreover, the content in class is absolutely critical to your ability to complete the homeworks and projects (and, therefore, your grade).

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.

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

Readings and Software

All materials for the course are free and open-access. Physical versions of the course books can be purchased online if desired. All other materials for the course (readings, notes, videos, etc) will be posted on Canvas. The course books are:

> *R for Data Science.* (https://r4ds.had.co.nz/index.html)
> Hadley Wickam and Garrett Grolemund. 2017. Oreilly.
>
> *Data Visualization: A Practical Introduction* (https://socviz.co)
> Kieran Healy. 2018. Princeton University Press.
>
> *OpenIntro Statistics* (4th edition) (https://www.openintro.org/book/os/)
> David Diez, Mine Cetinkaya-Rundel, and Christopher D Barr. 2019. OpenIntro, Inc.

I will teach the course using R (https://www.r-project.org) and RStudio (https://www.rstudio.com). These are free(!), flexible, powerful tools commonly used in both industry and academia. We will be using R in most of our classes and for your homeworks and projects. You can access R in the computer lab, but will probably want to install it on your personal computer (which we will discuss during the first week of class).

How can I do well?

This is a course on doing quantitative research, which includes quite a bit of statistics and coding, so it will be different from the typical sociology course. 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!**
- Doing statistics requires thinking through how to solve problems. Statistics cannot be learned simply by reading a book, listening to a lecture, or watching someone else code. You should not expect to really understand the material until after you have completed the relevant homework. **You can also learn a great deal (and save some time!) by working with others on the assignments.**
- **Learning to do statistics and use statistical software is in many ways like learning a language.** It gets easier the more you use it. Start the homeworks and projects early so you have time to work on them in multiple sessions and so can talk with others and get help if you need it.
- Please ask questions if you do not understand something. **If it is unclear to you, it is probably unclear to other students as well.** If it doesn't make sense in lecture, it will probably not make sense later when you are staring at your computer and trying to do the course assignments.
- Finally, I know 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.

Week	Starts on	Topic(s)	Due
1	8/22	Introduction to course, quantitative research, and statistical software	
2	8/29	The basics of R	hw 1 due 8/30
3	9/5 (no class Mon, 9/5)	Tidyverse	hw 2 due 9/6
4	9/12	Describing, analyzing, and visualizing one variable	hw 3 due 9/13
5	9/19	Describing, analyzing, and visualizing two variables	hw 4 due 9/20
6	9/26	Data wrangling	hw 5 due 9/27
7	10/3	Applications I	
8	10/10	Inferential statistics	project 1 due 10/11
9	10/17 (no class Fri, 10/21)	Comparing two groups	hw 7 due 10/18
10	10/24	Advanced data visualization	hw 8 due 10/25
11	10/31	Applications II	
12	11/7	Basics of linear and multivariate regression	project 2 due 11/8
13	11/14	Doing regression	hw 9 due 11/15
	11/21	THANKSGIVING BREAK	
14	11/28	The basics of programming in R	hw 10 due 11/29
15	12/5	Applications III	
Final	12/12		project 3 due Tue, 12/13 (date of assigned final exam)[1]

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[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 if 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/