

CJFS 1980: Basic Quantitative Criminology and Statistics

Dr. Ryan Larson

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Instructor

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Class Information

Classroom: BML 301

Class Hours: 12:50-2:20 p.m. TTh

Class Canvas: <https://canvas.hamline.edu/courses/15195>

Course description

"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." - H.G. Wells

If the intellectual dividing line of the early 20th century was linguistic literacy, in the beginning of the 21st century it may be quantitative literacy. Careers in criminology and criminal justice increasingly demand skills and responsible interpretation of the statistical analysis of data. CJFS 1980 is an introductory social science data analysis course designed for students who wish to gain a foundation in statistical analysis and the use of criminological data. In this course I will introduce students to the fundamental principles of the logic and execution of social quantitative research methods, statistics, and statistical computing. Students will develop skills in critically analyzing and producing social scientific research with introductions to research design, data visualization, descriptive, bivariate, and multivariate analyses, as well as working with spatial, network, and

text data. In addition to these statistical fundamentals, students will also think about where and when these skills are best put to responsible use. Whether students plan to go to graduate school, go into a data-driven job, or just want to be a better consumer of information, these skills will help students engage critically with quantitative information within criminology.

Objectives

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1. Explain how researchers use data and statistical evidence to develop criminological insights.
2. Critically evaluate quantitative claims about the social world.
3. Statistically analyze social data in connection with research questions of interest.
4. Responsibly interpret the results of statistical analyses and summarize results effectively.

Hamline Plan Objectives

This course is a [Hamline Plan](#) Quantitative Reasoning (M) course and therefore upon completion of this course you will be able to:

1. Explain information presented in mathematical forms.
2. Convert information into various mathematical forms.
3. Perform calculations successfully.
4. Make judgments and draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis.
5. Make and evaluate assumptions in estimation, modeling, and/or data analysis.
6. Effectively express quantitative evidence in support of an argument or conclusion.

Required Texts

1. CJFS 1980 Lecture Notes.
2. Various other resources found on the class Canvas page (TBD).

Optional Texts

1. Imai, Kosuke and Williams, Norah Webb. 2022. *Quantitative Social Science: An Introduction in tidyverse*.

Course Requirements

“Scholarly Attitude”

Some faculty members evaluate participation as a part of students’ course grades. But mere participation – how much you do or don’t talk, sit up or fall asleep – isn’t really what most of us want from our students. Instead, most of us hope to see students accept our invitation to “the life of mind” by adopting a “scholarly attitude.” Having a “scholarly attitude” involves developing intellectual curiosity and a genuine engagement with the ideas presented in the course. Students with a scholarly attitude take the student role seriously and demonstrate their commitment to academic pursuits by actively engaging in the material, reflecting deeply on the readings, raising thoughtful questions and comments in class, bringing unsolicited materials to share that are directly relevant to the topics being covered, come early and/or stay late to raise their own questions about the material, and generally go above and beyond the requirements of the course. Students who lack a scholarly attitude passively complete the readings and requirements, only occasionally engage in other activities during lecture, and are primarily concerned with obtaining a particular grade in the course.

Another exemplary aspect of having a “scholarly attitude” is how you handle a situation when you must be absent from class. A scholarly way to handle this will be to notify me of any potential absences, as well as to take initiative to catch up on any material missed by reading the lecture slides, getting notes from a fellow student, or coming to office hours.

The main idea here is to be actively engaged with the class material we will read this semester, and to display a genuine curiosity towards learning about crime. This portion of your grade is necessarily subjective, so please come see me if you have any questions or concerns about this part of your grade.

Labs

We will have weekly lab assignments (mainly consisting of data analysis and interpretation in R) that we will work on both inside and outside of class. Each lab will consist of analyses covering each week’s content, which will aid you in 1) practicing statistical programming in R, and 2) interpreting the statistical output of your code. Each lab will only consist of code that has **examples** from the lecture notes. These assignments will guide you through how to perform the statistical analyses in R, and will be workshopped during set-aside lab time in class (last half of Thursday lectures). Each Lab will be a formatted RMarkdown PDF file, which you will fill out and turn in via Canvas. We will discuss how to “knit” these PDFs at the beginning of the semester. All labs and accompanying data will be posted to the class Canvas site. **Each lab is worth 10 pts. and is due at 11:59pm on the Tuesday after it is uploaded to Canvas, unless otherwise noted in the course schedule.**

Descriptive 2-Pager

In order to delve deeper on a criminological topic of interest, and gain experience in applying your newly minted data analysis skills on real-world data, you will write a Descriptive 2-Page report in the style of an informational fact sheet. The idea here is relatively simple: pick a criminological question of interest, work to find relevant, up-to-date, and (most importantly!) available data sources, analyze the data in a fashion that answers your research question, and create short descriptive report that conveys the findings of your analyses.

Integral to this project is to pick a question, and data source, that is criminological in nature, as well as something you'd like to know the answer to! Further, exemplary projects will engage pressing criminal justice issues, and incorporate potential social or policy change as goals for their projects. In other words, how might your project be used to inform decision makers (legislators, judges, police commissioners, citizens, etc.) of pressing issues?

The purpose of this project is to 1) to ask a good (and answerable!) social science question, 2) to analyze data and make sense of the findings, and 3) leverage quantitative evidence in support of an argument or conclusion. In the early weeks of the semester, do some deep thinking about what *truly* interests you within criminology, and then we'll **work together** over the semester to produce empirically-sound, visually appealing projects!

Example research questions could include, but are certainly not limited to:

- What are the racial disparities of police use of force in the MPD?
- How do incarceration rates vary across U.S. States?
- How has Minneapolis' crime rate changed pre/post the covid-19 pandemic?
- Do Americans support the death penalty? Which Americans do and which do not?
- What are the extralegal effects in felony-level sentencing?
- What are the spatiotemporal patterns of mass shootings?

It should be noted that not all papers will have identical analytical techniques or visualizations. Some reports will likely be completely *descriptive* in nature, using descriptive statistics and/or data visualizations to convey criminological knowledge. Others may venture into more *explanatory questions*, which will require more sophisticated bivariate and, perhaps, multivariate analyses. Some may be a mix of both! Quantitative analyses are ideally tailored to best answer the specific question to be investigated, and there are often multiple ways to analyze the data that are valid by modern social science standards. This can appear daunting, especially given that some of you are learning these statistical techniques for the first time. Therefore, we will workshop and revise your ideas and project over the course of the semester, and develop your projects in consultation with both myself and your peers. Thus, the following due dates apply:

- 2/7 - Research Question Synopsis. 10 pts.
- 3/9 - Data Source Proposal. 10 pts.
- 4/13 - Draft of Report. 10 pts.
- 5/4 - Final Descriptive Report. 60 pts.
- 5/8 - Final Descriptive Report Presentation (5 minutes). 10 pts.

Each project will be chosen, and approved, in consultation with me and I will help guide you towards relevant data and ideas throughout the semester. The initial subcomponents will be graded for completion, and will allow an opportunity for me to give everybody feedback on their ideas, data sources, code, and reports step-by-step, without the specter of grades. The final submission will be graded as a normal project. This process hopefully will split the workload across the semester and mitigate any end of the semester time crunch, as well as allow you to improve your ideas, sources, and projects over the semester.

The final submission will consist of 1) a knitted PDF from an RMarkdown file and 2) the raw RMarkdown file with code (.rmd). In lieu of a final exam, we will use that time for short presentations of our projects, so we can share the analyses and knowledge we have produced over the semester! All submissions for the descriptive reports are **due at 11:59pm on each respective due date** and must be completed in a knitted PDF from a RMarkdown document (templates will be

provided for each subcomponent). More detailed descriptions of each subcomponent will be discussed in advance of each due date, and a more detailed rubric can be found on the class Canvas site.

Extra Credit (optional)

Find a statistic mentioned in media (e.g., newspaper, magazine, TV, Internet, radio, etc.) by a politician, public figure, columnist, activist, or even used by a friend on social media. Then, research the origins of that statistic. Who produced the research behind the statistic (e.g., an academic researcher, a think tank, a government agency, a non-profit, etc.)? What is the data source? What was the sampling method? What was the demographic composition of that sample? If applicable, what were the question wordings and response categories? What assumptions or decisions did the researchers make? What analysis method was used to produce the claim? Write an approximately 2-page report describing your findings and analyzing: a) the strengths and weaknesses of the statistic, b) whether it was accurately represented in the media source, and c) the validity of the quantitative claim of interest. The extra credit is worth 10 pts. upon completion.

The extra credit opportunity is due 5/4 11:59pm.

Course Policies and Information

General

First and foremost, welcome to CJFS 1980! I am so excited to go on this methodological and statistical journey and meet all of you! I find quantitative data analysis super fascinating and a power tool in a social scientist's arsenal, and I *promise* it can actually be fun sometimes! I hope we can have a great time this semester exploring quantitative data analysis and criminological topics this semester.

We will be using R and RStudio for data analysis this semester. R has a fairly steep learning curve as compared to other statistical software packages, but it is open source and is (or is becoming) the modal software for academic statistical data analysis. We will spend the beginning part of the class getting comfortable with R. With that being said, the goal this semester is **not** to become an "expert" in using R, but rather learn the basics of the program, how to perform some data analyses, and how to interpret the output. I want you to focus more on the interpretation of these analyses and why they are useful, as opposed to the intricacies of statistical programming. At no point will you be "tested" on code memorization or have to write code wholly from scratch (apart from perhaps some specific code for your project). Rather, there will be a multitude of examples you can utilize throughout the semester to adapt in your labs and projects. Thus, this course is an introduction to the world of quantitative social science, and I hope you see this as an opportunity to be acquainted with quantitative methods and statistical tools.

General

- Come to class as much as possible! This will allow you to keep up to date with everything, and really engage with the class material.
- Take notes! Either electronically or the old fashioned way with pen and paper, take notes during lecture and discussion. These will help you when you are studying for exams and writing your papers. I structure my lecture slides to be notes, and they will be available
- Ask questions! **Please, please, please**, ask questions whenever you have them. They can be simple logistical things or in depth questions about the class material. *Grappling with class material is what college is all about*, so I encourage you to ask questions whenever you find something confusing or fascinating! I'm happy to answer any questions as I am able, no matter how big or small. If I don't know the answer to something, I will work with you to find the answer!
- Come to office hours! Faculty members love when you come to see them. Take this time to get to know me and your other professors, which I personally found to be one of the most rewarding experiences of a liberal arts college experience as an undergraduate student. I am paid and am here to be a resource for you, and expect to serve in that capacity for your learning.
- Use a calendar! Whether it be your Google calendar or a planner book, write out all the relevant dates for the course: assignment deadlines, exam dates, class times, my office hours, etc. This will help you stay a bit organized and keep tabs on what's to come in the semester.

Please make use of this syllabus and the class Canvas site. They will both give a guide to what's coming next, and Canvas is also the hub for all assignment submissions. All supplementary class reading materials and other resources will also be posted to the class Canvas site.

Grading and Absences

Overall, I'd love for everybody to not worry about their grades and instead spend that energy with the readings and engagement in class. If you do so, I am *confident* that the grades will follow, and I want everybody in the class to succeed however you define that for yourself. With that being said, keeping up to date on the readings and class material will be *essential* to obtaining a high grade in this class. Keep in mind that grades **do not** define your worth as a person, nor as a student.

The grading breakdown, course requirements, and letter grade distributions are listed below. Please come see me if you have any questions related to grading or general course expectations.

All assignments are due at just before midnight of the night they are due unless otherwise noted (11:59pm due date). Emailed assignments are not accepted unless otherwise arranged, and all submissions will take place via Canvas.

Late assignments are deducted one letter grade if they are turned in within 24 hours of the due date and an additional letter grade for each additional 24 hours beyond this; assignments will not be accepted more than 1 week after the due date or all assignments are graded (whichever is later). Incompletes will not be granted except in rare or extraordinary circumstances and cannot be given without prior written agreement.

If you have questions about how you have been graded on a particular assignment, I have a general policy for handling these situations: please briefly put in writing your thoughts or comments on the grading and see me in the next available office hours. We will then discuss your grade(s). Any requests must be submitted within one week of the date the grades for that assignment are distributed.

If you miss a class, please ask a classmate to share their notes with you (in advance, if possible). If you are uncomfortable asking another student, please let me know and I will find a volunteer to share notes. **We are in this together!** Note that while attendance is not strictly required, multiple absences without proper notice and adequate reasoning will be reflected in your "scholarly attitude" grade.

You must notify me in person, e-mail, in writing, or by phone **prior** to missing an assignment due date or exam for me to consider giving you a makeup or extension. Exams may not be made up except in the rare event of an excused absence.

I know your lives are busy and hectic, and this class is likely not going to be the most important thing in your life (and it probably shouldn't be!). The key here is to **be in communication with me** when you are going to be gone or would request an extension, and I will do my best under the circumstances to work with you to find a solution.

Grade Distribution:

Grade	Range
A	93+
A-	90-92.99
B+	87-89.99
B	83-86.99
B-	80-82.99
C+	77-79.99
C	73-76.99
C-	70-72.99
D+	67-69.99
D	63-66.99
D-	60-62.99
F	< 60

Assignment Weighting:

Item	Weight	Points
Scholarly Attitude	20%	50 pts.
Labs	40%	100 pts.
Descriptive 2-Pager	40%	100 pts.

Communication

The best way to reach me is by email or come in-person to office hours. I will attempt to return email within 24 hours M-F and within 48 hours over the weekend. There will be times I cannot respond within 24 hours. If you wait until the last minute to email me with questions, I may not be able to respond in time. However, I will do my best to respond to all email inquiries in a timely fashion. I will also often be available after class to chat about any issues/questions you may have.

Inclusivity

Hamline University values diversity and inclusion; we are collectively committed to a climate of mutual respect and full participation. My goal is to create learning environments that are usable, equitable, inclusive, and welcoming. My goal is to welcome everyone to the fascinating world of criminology. As your professor, I hold the fundamental belief that everyone in the class is fully capable of engaging and mastering the material. Our classroom should be an inclusive space, where ideas, questions, and misconceptions can be discussed with mutual respect for others' ideas, beliefs, and experiences. There is usually more than one way to see and solve a problem and we will all be richer if we can be open to multiple paths to knowledge. This course will cover topics of a sensitive nature such as but not limited to class, gender, race, ethnicity, sexuality, religion, violence, victimization, and criminality. These are sensitive social topics, and I expect each of you to broach with maturity and scholarly curiosity. In addition, I expect students to show respect toward the subjects of our study, particularly those who have engaged in crime, as well as to treat your classmates and myself with respect and dignity at all times. Because I cannot possibly know each student's life history and what you may/may not find distressing (although, I certainly hope

to learn about you throughout the semester!), I am unable to alert the class to each possibility. Thus, this is a trigger warning of a sort for the entire course. If you have concerns over a particular topic/issue, please review the syllabus and if there is a concern, please let me know.

Office Hours

Please come to office hours! This is a dedicated time set aside for **you**, the student, to:

- Ask questions or get clarifications on topic that weren't clear in the lecture or readings
- Get caught up to speed should you miss a day of lecture
- Get feedback on assignments and papers
- Just talk "shop": research, criminology, etc.
- Talk about concerns you have inside or outside of class
- Get to know me! It also lets me get to know you as well, which is one of the best parts of my job.

I'm excited to meet and get to know each of you personally, and office hours are a great time to do that. Feel free to stop by anytime during office hours. If my usual office hours do not work with your schedule, please email me to schedule an office hours appointment and I will find a time that works with your schedule. I'd love the opportunity to learn about you, what is bringing you to study criminology, and how I can help you in your future studies/research/career. My office hours and location can be found near my picture at the top of this syllabus. Please don't hesitate to stop by and chat!

Academic honesty

Academic dishonesty will not be tolerated. Academic dishonesty includes but is not limited to cheating, plagiarism, making multiple submissions, fabricating information, using materials in an unauthorized manner, misrepresenting academic records, and facilitating academic dishonesty. A student found guilty of academic dishonesty can receive failure for an assignment, failure for the entire course, or academic suspension or expulsion. For more information on the Honor Code, please visit the [Honor Code website](#).

Discussion of class material and readings amongst students is encouraged, and helping each other out is encouraged! However, you are expected to work independently on assignments, papers, and exams. When in doubt, please come see me.

Preparedness

I promise to be prepared, engaged, and as helpful as I can be in each class period, as well as outside of class time. We will be wrestling with new and difficult topic matter during the course of the semester, and I understand it can seem daunting especially given your other responsibilities on and off campus. All I ask is that you give your best effort on each assignment, reading, and class period and I promise to reciprocate.

Campus Resources and Policies

Accessibility

If you have a documented disability for which accommodations may be required in this class, please contact Steve Anderson (sanderson65@hamline.edu, West Hall 108) as soon as possible to discuss accommodations. If you have already arranged accommodations through Disability Resources, please ensure submission of your accommodation letter within the first two weeks of class. Accommodations will only be provided after the letter is submitted to me and with sufficient lead-time for me to arrange testing or other accommodations. Although I will receive the letter electronically, I am available to chat privately during office hours about your accommodations if you wish.

COVID-19 policy

Any requirements for use of face masks on campus will be determined by the [Hamline University COVID-19 shift plan](#). See [Hamline's Mask Policy](#) for more information.

In general, if you were exposed to COVID-19, please follow the recommendations as follows from the CDC. Please keep the safety of your fellow students as well as faculty and staff at Hamline at the forefront in your decision making.

- [What to Do If You Were Exposed to COVID-19](#)
- [What to Do If You Test Positive for COVID-19](#)

Writing Assistance

The ability to communicate effectively in writing is an important skill that will be required all classes at Hamline University and in life outside of the University. While we will workshop papers throughout the semester and you will receive feedback before your final submission, there are also resources on campus to assist you with your writing.

There is free student writing support at the [Writing and Communication Center](#). The writing center can assist you in all stages of the writing process and I encourage all students to take advantage of this valuable resource. To schedule an appointment call (651) 523-2026 or visit the [Hamline University Writing and Communication Center Website](#)[Hamline University Writing and Communication Center Website].

Mental health

Mental health is important to be a successful university student, and aspects of university life can be stressful and can negatively impact mental health. Hamline University Counseling and Health Services provides confidential, free counseling and crisis intervention services to students. More information can be found at the [Counseling and Health Services Website](#).

Sexual Assault, Relationship Violence, and Stalking

Hamline University also provides academic and other accommodations to students who have experienced sexual assault, relationship violence (physical, emotional, or other form of abuse by a dating or other intimate partner), or stalking. For more information about Hamline's policy and the resources available to you, consult [Hamline's website](#) or contact our Title IX Coordinator and Associate Dean of Students, Patti Kersten, (651) 523-2421, pkersten01@hamline.edu.

Final thoughts

I am excited to explore the possibilities of quantitative criminology with you this semester, and I hope you all find this class to be interesting and engaging! Perhaps these skills may be of use in your future career, or in your everyday life! This class will be challenging on two different fronts: 1) we will learn new, sometimes complex, statistical methods and terminology and do so 2) alongside learning a bit of statistical programming. Make no mistake about it: quantitative data analysis is **HARD**. While that may be, I firmly believe *everyone* can do statistics and can be successful in this course. In all humility, I see myself as a sort of “guide and protector” for those who are anxious or inexperienced with statistics, and pride myself in being able to distill complex statistical ideas into the takeaway upshot. Therefore, I ask everybody to hold on tight, take a deep breath, and we will work through these challenges **together** this semester!

If this document is updated, a copy will be supplied to you via Canvas and changes will be announced in class.

Tenative Course Schedule

Date	Week	Lecture	ToDo
2023-01-24	1	Intro to QSS	Google Form
2023-01-26	1		
2023-01-31	2	Intro to R I	Lab #1 DUE
2023-02-02	2		
2023-02-07	3	Intro to R II	
2023-02-09	3		RQS DUE
2023-02-14	4	Intro to R III	
2023-02-16	4		
2023-02-21	5	Quantitative Measures	Lab #2 DUE
2023-02-23	5		
2023-02-28	6	Central Tendency	Lab #3 DUE
2023-03-02	6		
2023-03-07	7	Dispersion	Lab #4 DUE
2023-03-09	7		DSP DUE
2023-03-21	9	Statistical Inference	Lab #5 DUE
2023-03-23	9		
2023-03-28	10	Hypothesis Testing	Lab #6 DUE
2023-03-30	10		
2023-04-04	11	Bivariate Association I	Lab #7 DUE
2023-04-06	11		
2023-04-11	12	Project Workshop I	
2023-04-13	12	NO CLASS (NCUR)	DRP DUE
2023-04-18	13	Bivariate Association II	Lab #8 DUE
2023-04-20	13		
2023-04-25	14	Multiple Regression I	Lab #9 DUE
2023-04-27	14		
2023-05-02	15	Multiple Regression II	
2023-05-04	15	Project Workshop II	Lab #10 DUE; EC/FRP DUE
2023-05-08	16	Final Presentations	2:45-4:45 p.m.