SOCIOL333: Quantitative Analysis of Sociological Data

Summer Term 1, 5/15/2024 - 6/24/2024
Reuben-Cooke 129
M/T/W/Th 11:00 AM-12:15 PM

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Office hours: 10:30 M/T/W/Th, Reuben-Cooke 135

Introduction

Social science researchers use a variety of methods to investigate questions about the social world. The purpose of this course is to introduce you to quantitative research methods. On a basic level, this means teaching you how to perform statistical analysis of data, which we will do using the programming language R. But 'research' is more than plugging numbers into formulae: it involves developing research questions, finding (or collecting) and evaluating datasets, and using well-informed statistical methods to analyze that data. In this course, we will discuss and practice each step of that process, in order to develop your skills as social scientists.

Additionally, good scientific research is well-documented and reproducible–that is, another researcher who comes after you would be able to both understand your methods and to replicate your results. As you develop your analytical computing skills over the summer, you will also be introduced to methods and best practices for ensuring this is the case–both so that you can understand what you've done, after the fact, and so that other social scientists can build on your work in the future.

Course learning objectives

By the end of the semester, students will...

- learn to use statistics to shed light on questions about the social world
- learn to critically analyze the use of statistics in the world, and understand what statistics can and cannot answer
- learn to compose a clear and testable research question
- learn to build models and interpret results using sound statistical reasoning and best principles of scholarship, and to justify those choices
- learn principles of reproducible research, and develop a well-structured computing workflow
- use the R programming language in the RStudio IDE to load, manipulate, analyze, and visualize data
- use Git and GitHub to facilitate collaborative and reproducible research
- form and test their own sociological research question, and present their results to their peers with illustrative visualizations

Course policies

Class times

We will meet from 11:00-12:15 Monday through Thursday (except Memorial Day and Juneteenth) in Reuben-Cooke 129. See the schedule for more information.

Fridays will be available as work days, time to meet with me, or make-up days, in the event that we need to change or catch up with the course schedule.

Office hours

I will be available for 30 minutes before each class period, and by appointment.

Communication with me

I am available to answer questions both during office hours and via email. I will respond to emails within 24 hours Monday through Friday, but be aware, I don't regularly check my email before 9 am or after 7 pm, and I can't guarantee I will be reachable over the weekend.

Required materials

Our textbook is **freely available online**. You are not required to purchase a physical copy.

Introduction to Modern Statistics	Çetinkaya-Rundel, Hardin	OpenIntro Inc., 1st Edition, 2021	Hard copy available on Amazon

You will also need regular access to a laptop computer, which you must bring to every class meeting. If you do not have access to a laptop, let me know as soon as possible so we can get access to one for you to use in this course.

All lecture notes, assignment instructions, an up-to-date schedule, and other course materials may be found on the course website: soc333-sum24.github.io/.

Attendance

You are expected to attend every lecture. In addition to ensuring that you have in-class instruction time to cover material and ask questions, daily attendance will provide time for you to work on (and get help with) the daily exercises. You will need to bring a laptop to every class for this purpose.

If you have to miss class, let me know as soon as possible. You will still be expected to complete that day's in-class exercises, but you will have to do so on your own.

- **Please do not come to class if you are ill,** especially if you have tested positive for COVID-19 or have possible symptoms and have not yet been tested.
- **Inclement weather:** In the event of inclement weather or other events that prohibit class attendance, I will notify you how we will make up missed course content and work. This may include asynchronous catch-up methods, changes to the course calendar, and/or meeting on a Friday.
- **Religious accommodations:** Students are permitted by university policy to be absent from class to observe a religious holiday. The Trinity College of Arts & Sciences has established procedures for students to notify their instructors of an absence for religious observance. Please submit requests for religious accommodations at the beginning of the semester. You can find the policy and relevant notification form here.

Grading

Daily exercises are due two hours before the next class meeting where they are assigned, and are graded for completion. Because this course is about practicing problem-solving, you will receive full credit for the daily exercises as long as you've made an honest attempt to answer each question. It is always to your benefit to try! If you submit at least 80% of the daily exercises on time, you will receive full credit for the "in-class exercises" portion of your grade.

I will do my best to grade assignments accurately and consistently. I will only change a grade later if I have made a clear error. To ask a question about your grade to request a regret, email me.

Late work

Project components and in-class exercises may be submitted up to 3 days late. Details on the associated penalties will be provided with the assignment information.

The final course grade will be calculated as follows:

Category	Percentage
In-class exercises	35%
Project component 1: proposal	10%
Project component 2: descriptive statistics	10%
Project component 3: results	10%
Project component 4: presentation	10%

Project component 5: final paper	25%

Your final letter grade will be determined based on the following thresholds:

Letter Grade	Final Course Grade
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

Extenuating circumstances

If there are circumstances that are having a longer-term impact on your academic performance, please talk to me and/or let your academic dean know.

Academic integrity

The process of research is iterative and collaborative. However, you are required to be the principal author of your own work. This includes your code. The purpose of this course is to teach you a skill, not how to find a specific answer.

- You may collaborate and consult with other students; however, you may not directly share or copy code with other students. Unauthorized sharing (or copying) of the code or write up will be considered a violation for all students involved.
- Unless stated otherwise, you may (and should!) make use of online resources such as StackOverflow when completing assignments. If you make use of code directly from an

outside source, you must state where you found the code. Any recycled code that is discovered and is not explicitly cited will be treated as plagiarism.
- The use of “AI” resources like ChatGPT is not necessary for this course, and is strongly discouraged.

TL;DR: Don't cheat!

Any violations in academic honesty standards as outlined in the Duke Community Standard and those specific to this course will automatically result in a 0 for the assignment and will be reported to the Office of Student Conduct for further action.

Assessments

The assessments in this course are designed to help you successfully achieve the course learning objectives.

In-class exercises

Much of our class time will be devoted to practical, in-class exercises, where you will practice applying the concepts from the lecture. You will be expected to turn in the exercises from the previous lecture an hour before our next class meeting.

These exercises will be graded for completion–i.e., if you have made a good-faith attempt to answer all parts of the exercise, you will receive full credit. You will receive full points for the in-class exercise portion of the final grade if you submit at least 80% of the exercises on time

Project

During this course, you will be developing a research project to analyze a sociological research question of your choice. The purpose of the project is to apply what you've learned throughout the semester to a question which interests you.

You will complete the project in several component parts that will be graded individually, and will assemble the parts into a complete paper and presentation at the end of the semester. You will bring a draft of most components to class to workshop with your classmates before submitting them for grading, and your grade for each component will be determined by both the quality of your final, submitted work and your participation in the peer feedback process. More information about the project will be provided during the semester.

Course community

Duke Community Standard

As a student in this course, you have agreed to uphold the Duke Community Standard as well as the practices specific to this course.

Accessibility and inclusion

I intend for my classroom to be an inclusive space for students with a diversity of perspectives and experiences. I intend to present material and activities that align with Duke's Commitment to Diversity and Inclusion. Your suggestions are encouraged and appreciated.

I expect you to engage respectfully with your peers, as fellow members of the Duke community and as human beings.

Further, this course is intended to be a resource for you! I am not teaching to hear myself talk–my goal is to help you learn. To that end, if you require academic accommodations in order to engage fully with the class material, contact the Student Disability Access Office (SDAO) for assistance with course accommodations.

If you need additional academic support beyond what I can provide in class and in my office hours, consider contacting the Academic Resource Center (ARC). The ARC offers free support services to Duke undergraduates, including academic skill development, learning consultations, peer tutoring, and ADHD/LD support.