Statistical Methods in Psychology

Thursday 5-7pm, in NAC 1-302 (lower level of library)

Course Description

This MA course is designed to teach you to use the statistical tools that form the basic toolbox, in a hands-on environment working with a lot of real data. Students will get a better understanding of statistics, of how numerical evidence is used and abused, and of how people can torture the numbers to make them appear to support their point of view. In our modern world statistics are the first choice for how someone is going to lie to you. If you know some of the secrets then you will be able to see through other people's lies (and perhaps create some of your own – if you choose to embrace the dark side!).

Course Mode

The course is *in person*. It's important to meet people in person to establish relationships, since your fellow students are vital in your education. You might, from time to time, be unable to get to campus. I might have a zoom link for class so you can get some exposure to what's going on but note that is substantially inferior. No zoom for exams.

Textbook

There will be a diagnostic test early in the term; students will use the online module on Statistics from Hawkes Learning http://www.hawkeslearning.com/.
This course uses the textbook by Kieran Healy, Data Visualization. You can buy it or there is a free version online https://socviz.co/.
We will learn the R statistical language. You should get *R for Data Science* by Hadley Wickham (you can read it online for free https://r4ds.had.co.nz/ or pay for a download).

Professor

Kevin R. Foster, The Colin Powell School for Civic and Global Leadership, The City College of New York, kfoster@ccny.cuny.edu, m: (860) 593-7674 Pronouns: he/him. Please call me "Kevin" (*although default for instructors is Professor <lastname> I'm just weird*). Office hours via Calendly link https://calendly.com/kevinrfoster/15min.

Course Requirements/Prerequisites

This course assumes that you have prerequisites of a basic undergraduate course in statistics and enough familiarity with computers to quickly learn new programs.

Most course material will be presented in online videos. All assignments will be submitted online. We will have a Slack channel for regular communication.

Computer Use

We'll do a lot of work with (free) computer programs such as R and RStudio. You don't need your own computer although it would be helpful. If you don't have that, you will spend time in the campus computer labs. You are not required to have previous experience with coding.

Educational Outcomes

Students will be able to apply mathematically rigorous analysis to topics such as hypothesis testing, common probability density functions, and regression analysis.

Grading

Course grades are determined by four factors: your diagnostic test result, your scores on the exams, your demonstrated skill at using statistical analysis in a final project, and your scores on the homework assignments. The exams have a 45% weight, the project has a 30% weight, homework gets 15%, and the diagnostic test is 10%. (Homework assignments and diagnostic test are graded as check, check-plus or – minus, or fail.) There is no BS factor of effort or any other unobservable will-o-wisps – the weightings sum to 100. Your grade is determined entirely on observed performance.

Grades will be posted on the course page, so that you can check your progress and determine what grade you can expect to receive. In this public grade posting, you will be identified only by the last 4 digits of your CUNYfirst ID number (if you wish to choose some other 4-digit identifier, email me).

Time Requirements

You should expect to spend 10-12 hours per week on this class. My simple calculation is that a student who is going to school "full time" takes 4 or 5 classes and someone who works fulltime at a job works 40-50 hours per week. So about 10 hours per week is a good estimate. If you don't put in that much work then you can't expect to get a good grade. (This is confirmed by research)

Exam

The syllabus shows the weeks when the two exams are scheduled.

Final Project

You will work with a small group of fellow students to write a project to analyze a question using one of the datasets that we'll be working with. You will make a presentation about this project in class; the presentation counts as homework and then the written project has a separate grade. This will require you to use statistical analysis software with a large dataset. More details will be given later in the course.

Course Material
Homework and basic course documents will be on the class page, publicly accessible from my web page (https://kfoster.ccny.cuny.edu/classes/spring2024/). Little of the material will be available on the Blackboard course page (login required). More on the class Slack channel. I will periodically send emails to the class so you must regularly check your CCNY email.

Additional Reading
If you end up engulfed in a love affair with stats, you might be interested in these books too:
- Cathy O'Neil & Rachel Schutt, *Doing Data Science.*
- Cosma Rohilla Shalizi, *Advanced Data Analysis from an Elementary Point of View*.
- John W. Tukey, *Exploratory Data Analysis* (in library)
- Edward R. Tufte *The Visual Display of Quantitative Information*, *Visual Explanations: Images and Quantities, Evidence and Narrative* (in library);
- Howard Wainer, *Graphic Discovery: A Trout in the Milk and Other Visual Adventures*
- David Salsburg, *Lady Tasting Tea: How Statistics Revolutionized Science in the Twentieth Century*
- Stephen Stigler, *Statistics on the Table* (in library) and *The History of Statistics: The Measurement of Uncertainty before 1900* (in library).
- Andrew Gelman and Jennifer Hill, *Data Analysis Using Regression and Multilevel/Hierarchical Models*.
- Annie Duke, *Thinking in Bets*. https://www.youtube.com/watch?v=uYNsSeYjkp4
- Leonard Mlodinow, *The Drunkard's Walk: How Randomness Rules Our Lives*.
- Judea Pearl, *Book of Why*.
- Hadley Wickham, *R for Data Science* https://r4ds.had.co.nz/.
- Carl Bergstrom & Jevin West, *Calling Bullshit*.

Weekly Topics

Psych V0500, Spring 2024

Kevin R Foster, CCNY

Date	Chapter(s)	Topic
Jan 25	1, *online notes*	Introduction to Stats, Visualization, R
Feb 1	2, *online notes*	Know Your Data
Feb 8	3, *online notes*	Basic Statistics
Feb 15	4, *online notes*	Making plots; Random Variables
Feb 22	--	**No class – CCNY has Monday schedule**
Feb 29	5, *online notes*	More Data Viz; Estimating Parameters
Mar 7	6, *online notes*	Work with Models
Mar 10	Hawkes	**Diagnostic Test must be completed before 11:59pm (local time)**
Mar 14	*comprehensive*	**Exam 1**
Mar 21	8, *online notes*	Better plots; Hypothesis Testing
Mar 28	*online notes*	k-nn; OLS
Apr 4	*online notes*	Limited-Dependent Variables
Apr 11	*online notes*	Other Models
Apr 18		**Exam 2**
Apr 25		**No class**
May 2		*Class Presentations of Research Projects – attendance is graded*
May 9		*Class Presentations of Research Projects – attendance is graded*
May 24		**Final Project Due** before midnight

Chapters refer to **Data Visualization** by Kieran Healy. That text is available free. Students must purchase access to Hawkes Basic Statistics.

There will be videos and lecture notes online – these are important. Exams will cover material in both textbook and lecture.

Deviations from the schedule will be announced in class.

The exam dates are given above. You must take the exams at the scheduled times. No excuses.

CUNY Policy on Academic Integrity

"Plagiarism is the act of presenting another person's ideas, research or writings as your own. The following are some examples of plagiarism:

- "Copying another person's actual words without the use of quotation marks and footnotes attributing the words to their source;
- "Presenting another person's ideas or theories in your own words without acknowledging the source;
- "Using information that is not common knowledge without acknowledging the source;
- "Failing to acknowledge collaborators on homework and laboratory assignments.
- "Internet plagiarism includes submitting downloaded term papers or parts of term papers, paraphrasing or copying information from the internet without citing the source, and "cutting & pasting" from various sources without proper attribution."
- A student who plagiarizes may incur academic and disciplinary penalties, including failing grades, suspensions, and expulsion.
- A complete copy of the CUNY Policy on Academic Integrity may be downloaded from the College's home page.

Accommodations for Students with Disabilities

Your success in this class is important to me! We all learn differently. The Office of Student Disability Services (SDS) is dedicated to providing students with disabilities equal access to the College curriculum. The Office ensures that, upon request, qualified students with disabilities are provided reasonable and effective accommodations, as mandated by law, as well as appropriate support services. At City College, we strive to make all our classes accessible to every student, regardless of any disability (visible or non-visible; physical, cognitive, emotional, or learning) or any other special circumstances (such as a medical, personal, or housing emergency; family responsibilities; financial difficulties; legal difficulties; or immigration status) that may affect your ability to attend class and complete the coursework. Please speak to your professors in office hours or via email early in the semester or as soon as you're aware that you may need accommodations.

In addition, City College offers resources to students in a wide range of circumstances. Please share this information with your friends and classmates at CCNY! We want all students to succeed and to take advantage of all the support the college has to offer.

Students who contact SDS and indicate that they have a disability or believe that they might qualify for services will be asked to make an appointment for an intake interview with SDS staff. To qualify for services, students must register with SDS.

Service animals are welcome in class.

Early planning is essential for many of the resources, adjustments and accommodations; students are asked to contact SDS at the earliest possible date (NA 1/218; 212-650-5913 or 212-650-6910 for TTY/TTD).

Emergency Grants

The Colin Powell School has Emergency Grants for students impacted by Covid-19 pandemic and quarantine. If you need help and/or funds, please contact Ms Charlene Darbassie cdarbassie@ccny.cuny.edu

IT Needs

If you need a computer, tablet, or wi-fi, you can request them through an online form (https://portal.ccny.cuny.edu/depts/oit/cuny_loaner/login.php). You can also contact the iMedia Center via email (imedia@ccny.cuny.edu) or their Zoom virtual front desk, Monday-Thursday, 11am-3pm (https://ccny.zoom/us/j/2126505480).

Tutoring/Academic Support

If you are struggling in any of your classes, don't hesitate to get extra academic support. Talk with advisors (contact info below).

Advising

Contact the Colin Powell School Advising Office (https://www.ccny.cuny.edu/colinpowellschool/office-academic-advisors). At their website, you can make a virtual appointment with one of the advisors or you can find their email addresses so you can send them a message.

Internships and Careers
To receive information and support about securing internships and planning for your post-college career, please contact Colin Powell School Office of Student Success. https://cps-oss.ccny.cuny.edu/

Mental Health
CCNY has free anonymous programs available to community members who need help, https://www.ccny.cuny.edu/counseling for details or call (212)650-8222. Daytime/Walk-in Crisis Services are available to students whose crisis affects their own or others' safety. If the crisis is urgent but the Counseling Center is closed, please contact Public Safety at (212)650-7777 or call the Crisis line at (800)273-8255. If you are in a life-threatening situation while off-campus, call 911 or go to the nearest Emergency Room. There is a Psychological Counselor: Confidential Advocate for confidential clinical services to students and employees who have experienced gender-based violence.

The Colin Powell School offers free, confidential peer mentoring with trained graduate students on issues of stress management and self-care. To sign up, simply send an email (peernavigationccny@gmail.com) or sign up online (https://calendly.com/peernavigation/calendar?month=2022-01).

The Psychological Center, located in the NAC Building, 8th Floor offers a range of in-person psychological services at low cost, including individual and group psychotherapy, couple's therapy and psychological testing. All services are confidential. To schedule a psychological screening, please call 212-650-6602 or you can go on the clinic's website https://www.thepsychologicalcenter.org/ and click on NEW PATIENT to begin the process for a psychological screening.

"One in five New Yorkers lives with a mental health condition. The other four are our family, friends, fellow students, neighbors, colleagues. Whether you are living with mental health challenges or you care about someone who does, NAMI-NYC's programs and services can help. NAMI-NYC programs are led by and for people living with mental health challenges AND the people who care about them. We understand what you're going through because we're living it too. All of our programs and services are available FREE of charge and you can be as anonymous as you'd like. It's never been easier to find help and find hope. Contact NAMI-NYC's FREE Helpline to learn more today at 212-684-3264 or helpline@naminyc.org."

Student Basic Needs
Students who find themselves experiencing difficulties obtaining food every day or who lack a stable and safe place to live are urged to come to Benny's pantry for assistance (https://www.ccny.cuny.edu/bennysfoodpantry). Benny's pantry is located on the ground floor of the North Academic Center (NAC) and is open to anyone within the CUNY community (students, staff, faculty) in need of support. The pantry is open from 10am to 6pm and is self-serve. Additional emergency support for financial, health and housing needs are also available through Benny's. Please contact Dee Dee Mozeleski at dmozeleski@ccny.CUNY.edu or Charles Ramirez @cramirez@ccny.CUNY.edu for additional details.

Policies on Non-Discrimination and Sexual Harassment
The City College prohibits discrimination on the basis of age, gender, sexual orientation, transgender, disability, genetic predisposition or carrier status, alienage or citizenship, religion, race, color, nationality or ethnic origin, or veteran, military or marital status in its student admissions, employment, access to programs, and administration of educational policies. Questions, concerns, or complaints based on any of the above may be directed to the Office of Diversity and Compliance, Wille Administration Building, Room 212 (212-650-6310). In addition, the specific form of gender discrimination, "sexual harassment," is prohibited by the policies of the Board of Trustees of The City University of New York. Student complaints alleging sexual harassment should be directed to the Sexual Harassment Awareness and Intake Coordinator (see Appendix B.15 of the Bulletin, and the Sexual Harassment brochure for the name of the current Coordinator and a list of Committee members who may be contacted). Brochures are available in the Office of Diversity and Compliance, the Office of Human Resources, the Office of the Vice President for Student Affairs and at the NAC Welcome Center. Information is also available on the City College website under Office of Diversity.

If you are experiencing or have experienced domestic violence or violence that is sex-based, gender-based, or sexuality-based; or if you are experiencing or have experienced discrimination because of gender, sex, sexuality, race, ethnicity, language, religion, disability, or other reasons, please report it to Diana Cuozzo in the Office of Affirmative Action, Compliance, and Diversity via email (dcuozzo@ccny.cuny.edu) or phone (212-650-7330). For a confidential discussion of these and related issues, please contact Sophie English via email (senglish@ccny.cuny.edu) or phone (212-650-8905).

The Health and Wellness Center offers resources to survivors of gender-based and sexuality-based violence as well as to all members of the LGBTQIA+ community at CCNY. You can learn more about these gender resources online (https://www.ccny.cuny.edu/health-wellness/gender-resources) or via phone (212-650-8222), via email (genderresources@ccny.cuny.edu), or by visiting their virtual front desk, Monday-Thursday, 10am-4pm (https://ccny.zoom.us/j/2126508222).

Every student has their own identity and can choose what name to use and what pronoun. Gender Resources info https://www.ccny.cuny.edu/health-wellness/gender-resources

Policy on Children in Class
All students should assist in welcoming their peers who are parents. Breastfeeding babies and newborns welcome always. For older children, I understand that unforeseen disruptions in childcare can be an issue so you are welcome to bring your child to class – although this is not a longterm solution.

Veterans
We welcome students who have served our country as members of the armed forces https://www.ccny.cuny.edu/veterans

Immigrants
CUNY Citizenship Now offers free immigration services to all CCNY students and their families https://www.ccny.cuny.edu/we-are-one-ccny/city-college-immigration-center or CCNY Immigration Center for free and confidential advice via phone (212-650-6620) or email (meetu.dhar@cuny.edu).

Tutoring
If you are struggling in any of your classes, don't hesitate to get extra academic support. Just make an appointment with or City Tutors (https://www.thecitytutors.org/).