“One day when I was a junior medical student, a very important Boston surgeon visited the school and delivered a great treatise on a large number of patients who had undergone successful operations for vascular reconstruction. At the end of the lecture, a young student at the back of the room timidly asked, ‘Do you have any controls?’ Well, the great surgeon drew himself up to his full height, hit the desk, and said, ‘Do you mean did I not operate on half the patients?’ The hall grew very quiet then. The voice at the back of the room very hesitantly replied, ‘Yes, that’s what I had in mind.’ Then the visitor’s fist really came down as he thundered, ‘Of course not. That would have doomed half of them to their death.’ God, it was quiet then, and one could scarcely hear the small voice ask, ‘Which half?’”

–Dr. E. E. Peacock, Jr., University of Arizona College of Medicine; Medical World News (September 1, 1972)

Class schedule and office hours

Class (Silsby 29b): MWF 2:10–3:15 PM (x-period Thursday 1:20–2:10 PM)

Office hours (Silsby 122): MWF 9–10 AM ET (sign up at https://go.oncehub.com/nyhan)

Course overview

This class is a lab-style seminar in which we will design, field, and analyze an experimental study of misperceptions. Every aspect of the class will require your active involvement. Working together, we will build deep knowledge of a rapidly developing area of scientific research; learn how to employ survey and experimental methods to design a novel study of this topic; and then analyze, present, and critique our findings in the rigorous format of technical academic writing. Our ultimate goal is to jointly publish a scholarly article in a peer-reviewed journal—an ambitious project that will require a substantial commitment from each student. Flexibility will also be essential given the format of the course and because our plans will evolve based on the needs of the project.

Prerequisites

Credit for GOVT 10 or an equivalent course is required and advanced quantitative course work in the social sciences such as QSS 17/GOVT 16, QSS 19,
QSS 20, and Econ 20 is desirable. We will use Stata or R extensively to analyze data using statistics (you may use whichever you prefer). Please contact me if you are uncertain about your background or preparation for this course (in particular, if you have only had AP Statistics).

Outline of the course

We will begin by discussing the goals of science and the value of experiments. We will then learn about experimental design, statistics, and the use of statistical software. To make these concepts more real, students will design, administer, and analyze their own mini-experiments in small groups. Students will also take part in real surveys and experiments online to learn about the participant experience in research.

In the second phase of the course, we will determine the focus of our research. With my guidance, students will survey recent articles in fields such as political science and psychology, identify a promising theory or unresolved question related to the study of misperceptions that could be addressed using an experiment, and write a short paper proposing a study that we could carry out. After these proposals have been presented, the class will decide which questions to pursue. Typically, we select two designs for pre-testing, evaluate the results of the pre-tests, and then refine the preferred design for the final study.

In both the pre-test and final study design phases, we will break into groups to design different portions of the experiment, which will be revised and combined. After finalizing the design and obtaining human subjects approval to conduct the study, we will collect experimental data from online participants on CloudResearch Connect or an equivalent service.

During the last part of the class, we will work together to analyze the data and report our findings. Each student will write a short paper adhering to the formatting and word limits of the Journal of Experimental Political Science (maximum 4000 words). I will combine those drafts into a class manuscript that we will revise collaboratively. The class will culminate with each student developing a critique of the paper’s writing, argument, and quantitative analysis and proposing revisions and/or additional experiments designed to improve it. These changes will hopefully be integrated into a manuscript that will be submitted to a scholarly journal after the completion of the course. (The outcome will depend on the results of our initial experiment.) Participation in revisions after the class ends is totally optional.

Learning objectives

By the end of the course, you will be able to:

- Explain the value of experiments to science
- Critique previous observational and experimental research in political science and psychology
• Design and conduct an original experiment
• Perform a statistical analysis of experimental data
• Write and critique a scholarly article reporting the results of an experiment

Because these tasks may be unfamiliar, submissions from past classes are provided as a reference for each major assignment on Canvas.

Course materials

The following book is required and can be purchased for under $30 from Amazon or other retailers (please contact me if the cost is a barrier or you face any other financial challenges related to this class):


A few chapters from other books will be made available as scanned PDFs on Canvas under Course Materials and are labeled as such below. All other assigned readings can be accessed by clicking on the hyperlink in the article title below. (Note: You will need to be on the campus network or logged into the VPN to access those that are behind academic journal paywalls.)

Slack for class discussion and questions

We will frequently need to correspond online to facilitate our joint work on the class research project. We will use the Slack messaging app to facilitate these conversations; it makes it possible for you to more effectively coordinate with and learn from each other and me outside of class. Please note that you can of course email me privately at any time, come to office hours, etc. With that said, I will often encourage you to post questions and/or answers from email to Slack so everyone can learn from the exchange.

Communication and course materials

The class will run through Canvas and Slack. I will use Canvas to email announcements to you and to provide PDFs of assigned readings that are not available online. Please submit your work to me through its assignments function rather than by email. However, if you have questions, please email me, message me on Slack, or schedule an appointment for office hours.

We will frequently work in groups during the term inside and outside the classroom. When synchronous communication is needed outside of class, you can meet in person with other students or use Zoom as you prefer. For asynchronous communication and coordination, we will also use Slack (for informal/rapid communication) and Dropbox (for sharing project files that you can easily modify — all official course documents will still be posted on Canvas). In each of these contexts, I ask you to be understanding of the different situations and needs of your colleagues in the course.
Laptop/electronic device policy

We will frequently use computers in class for group projects or other research tasks, but laptops, cell phones, and other electronic devices may not be used during lectures or class discussions without the permission of the instructor. You should therefore make sure to bring your textbook to class and print out other readings. This policy is motivated by the growing body of research which finds that the use of laptops hinders learning not just for the people who use them but the students around them as well. Multitasking is unfortunately distracting and cognitively taxing. In addition, research suggests that students take notes more effectively in longhand than when they write on laptops. (Exceptions will be made for students with disabilities who need to be able to use a laptop.)

Academic integrity

Students are responsible for understanding and following the academic integrity rules at Dartmouth. Ignorance of the Academic Honor Principle will not be considered an excuse if a violation occurs. Beyond any penalties imposed as a consequence of an Academic Honor Principle investigation, any student who is found to have cheated or plagiarized on any assignment will receive a failing grade. Details on citing sources appropriately are available from the Institute for Writing and Rhetoric. In general, you should always err on the side of caution in completely avoiding the use of language from authors you have read or from your classmates absent proper attribution. Following Dartmouth’s academic integrity policies strictly is of course always mandatory but it is especially essential in this seminar because we hope to publish our research in a peer-reviewed journal. (Any infractions could harm the entire class.) Please contact me immediately if you have any questions or need further clarification — in particular, about the large language model policy (see below).

Large language model policy (e.g., ChatGPT)

Use of AI tools such as ChatGPT is permitted in this course for the following purposes:

- Getting help with code in Stata or R
- Asking for help understanding concepts (including tutoring) or research studies
- Asking for help brainstorming or outlining
- Asking for help identifying and correcting grammar, spelling, and punctuation errors

The following uses are not permitted:
• Submitting AI-generated text (either verbatim or in edited form) in papers or other written assignments

• Submitting AI-generated Stata or R code without listing it as a utilized resource

Please provide a description of exactly how you used AI tools in any assignment you submit in which they were employed. As always, please remember that you are ultimately responsible for the work you submit, including verifying that it is correct and adheres to Dartmouth’s academic integrity standards (see above). Again, if you use or adapt code generated by AI systems, you must cite it appropriately.

In general, I encourage you to reflect on how to most effectively use AI tools. First, depending on them may undermine your own learning and hinder understanding of class concepts. Second, large language models often give wrong answers that are difficult for non-experts to detect. You are responsible for the accuracy and quality of the work that you submit.

Again, I emphasize that submitting AI-generated text as your own constitutes an academic integrity violation. Following Dartmouth’s academic integrity policies strictly is of course always mandatory but it is especially essential in this seminar because we hope to publish our research in a peer-reviewed journal. (Any infractions could harm the entire class.)

If you have questions about this policy, please ask me!

Religious observances

Dartmouth has a deep commitment to support students’ religious observances and diverse faith practices. Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with me as soon as possible — before the end of the second week of the term at the latest — to discuss appropriate course adjustments.

Students with disabilities

Students requesting disability-related accommodations and services for this course are required to register with Student Accessibility Services (SAS; Apply for Services webpage; 1-603-646-9900) and to request that an accommodation email be sent to me in advance of the need for an accommodation. Then, students should schedule a follow-up meeting with me to determine relevant details such as what role SAS or its Testing Center may play in accommodation implementation. This process works best for everyone when completed as early in the quarter as possible. If students have questions about whether they are eligible for accommodations or have concerns about the implementation of their accommodations, they should contact the SAS office. All inquiries and discussions will remain confidential.
Socioeconomic differences and financial difficulty

Our community is composed of students from a variety of financial backgrounds. Socioeconomic diversity can be invisible, and you may be experiencing financial difficulties related to the cost of textbooks, materials, or other necessities for our class of which I am not aware.

If you encounter financial challenges related to this class, there may be sources of support for you. If you feel comfortable sharing your experience with me, you may. You may also consider meeting with a financial aid officer to discuss options, reaching out to the First-Generation Office if you are a first-generation student, browsing the Funding Resources page, or, for unexpected expenses, applying to the Barrier Removal Fund through the Financial Aid tile in DartHub.

Student wellness

I recognize that the academic environment at Dartmouth is challenging, that our terms are intensive, and that classes are not the only demanding part of your life. There are a number of resources available to you on campus to support your wellness, including your undergraduate dean, Counseling and Human Development, and the Student Wellness Center. I encourage you to use these resources and to speak with me if you have concerns.

Title IX

At Dartmouth, we value integrity, responsibility, and respect for the rights and interests of others, all central to our Principles of Community. We are dedicated to establishing and maintaining a safe and inclusive campus where all community members have equal access to Dartmouth’s educational and employment opportunities. We strive to promote an environment of sexual respect, safety, and well-being. Through the Sexual and Gender-Based Misconduct Policy (SMP), Dartmouth demonstrates that sex and gender-based discrimination, sex and gender-based harassment, sexual assault, dating violence, domestic violence, stalking, etc., are not tolerated in our community.

For more information regarding Title IX and to access helpful resources, visit Title IX’s website. As a faculty member, I am required to share disclosures of sexual or gender-based misconduct with the Title IX office.

If you have any questions or want to explore support and assistance, please contact the Title IX office at 603-646-0922 or TitleIX@dartmouth.edu. Speaking to Title IX does not automatically initiate a college resolution. Instead, much of their work is around providing supportive measures to ensure you can continue to engage in Dartmouth’s programs and activities.

Diversity, equity, and inclusion

I seek to create a learning environment that supports a diversity of thoughts, perspectives, and experiences and that honors your identities.
is to create a classroom that is conducive to everyone’s learning. I have an expectation that we will treat each other with respect and collegiality and that we will be open to perspectives that challenge our own. If you have a concern about the policies or content of the class or would like to use a different name or pronouns than those provided by the College, please contact me.
Office hours

Office hours are designated times that faculty members set aside each week specifically for students to ask questions about the course material or college in general on a one-on-one basis. My office hours are Monday, Wednesday, and Friday 9–10 AM in Silsby 122. Please reserve a slot during those times at https://go.oncehub.com/nyhan. (If you cannot meet with me during any of those times, please email me to request an alternate time.)

Assignments and grading

Grading in this class will be based on the components described below. All work is due at the time specified in the syllabus and on Canvas unless otherwise noted. Late work will not be accepted without prior permission.

Class participation—10%

By necessity, our collaboration will largely take place in the classroom. As such, it is essential that each student make thoughtful and consistent contributions in class discussion and group work. At a minimum, however, you should attend class on time with your readings and assignments completed and be respectful of others during class discussion.

Please also note that we will often collaboratively write or edit documents, analyze data, etc. during class meetings. It is thus essential for you to attend every class unless you are ill so you can participate in these activities.

One-page assignments and contributions to collective work—10%

It is also important that each student make contributions to our collective effort outside of class time. During the quarter, students will be regularly asked to contribute to the design of our experiment via email, on Google Docs, etc. and to complete a series of one-page assignments asking them to propose experiments, critique proposed experiments, and suggest revisions that could improve them. In each case, the goal is to help teach you how to think analytically about answering social scientific questions using experiments. Your contributions will be evaluated based on creativity, insight, and attention to detail.

Proposed experiment (due 4/9 8 PM; draft due 4/7 10 PM)—20%

Each of you will work with me to select a proposal topic and write a 1000–1500 word paper summarizing recent research in that area and proposing a realistic experiment related to misperceptions which would make an important contribution to that literature. (Note: Before starting the assignment, review the articles recommended at the end of the syllabus.)

Here are the three primary goals of this assignment, which correspond roughly to the structure I envision (though the organization of the paper is up to you):
1. Give a short but precise summary of the most important (i.e. new/prestigious or influential/highly cited) articles in your field so that the class can discuss your area intelligently. You can’t cover all of the research, so you should make sure to focus on the key aspects of the most important and novel studies (research questions, methodologies, findings, etc.). The idea is to give us an overview of the most relevant work (i.e., the foundational research and the most recent/relevant studies) and to build from there.

2. Make an argument for where the literature described in #1 has fallen short or where unanswered questions remain. This can be a separate section or woven into your literature review.

3. Propose an experiment that builds on the state of the art described in #2. Your description of the experiment needs to provide enough detail so that we can have an intelligent discussion about it. At a minimum, it should include the research question/hypothesis, the experimental design (e.g., 2x2 between-subjects), the proposed experimental treatments, the dependent variable(s), any non-experimental variables should be measured because they might change the effect of the treatment, and any steps that should be taken to minimize extraneous/confounding variables.

Since this will be a new type of assignment for most of you, I will review proposal ideas (assignment due 3/31 8 PM) and also provide feedback on a draft (due 4/7 at 10 PM). I strongly recommend making an appointment with RWIT to get feedback on it as well. I will also make sample proposals from previous students available on Canvas. I strongly recommend making an appointment with RWIT to get feedback on it as well.

Article manuscript (due 5/16 11:59 PM; draft due 5/14 8 PM)—35%

Each student will write a short paper reporting the results of the experiment that adheres to the formatting and word limits of a research article in the *Journal of Experimental Political Science* (maximum 4000 words). You will have a chance to get feedback from your classmates on a draft of your article before it is due. I strongly recommend making an appointment with RWIT to get feedback on it as well. Examples of papers written by previous students are available on Canvas. The rubric that I will use to evaluate your work is provided at the end of the syllabus.

Proposed revisions/critiques of article—25%

I will combine the drafts into a single class manuscript. Each student will then develop a 500–750 word paper critiquing a specific aspect of its writing, argument, and/or quantitative analysis and proposing revisions or future experiments to address the problems they have identified (5%, due 5/26 8 PM). The goal is to give you experience with the critique and revision process. You will get feedback from your classmates on a draft (due 5/23 8 PM) before submitting
a final version. I strongly recommend making an appointment with RWIT to get feedback on it as well.

Students will then write a 1500–2500 word critique of the article as a whole for their final paper. It should make a coherent argument that proposes further revisions and/or suggests future research projects that build on our results (20%, due 6/3 11:59 PM). Please submit a draft of your long critique before our final class (due 5/28 8 PM). I strongly recommend making an appointment with RWIT to get feedback on it as well.

For both critiques, please make sure to avoid listing a series of disconnected points in little depth. You should instead seek to develop an argument for a single critique or a set of closely related points. I have provided sample critiques from previous students on Canvas as examples. The rubric that I will use to evaluate your critiques is also provided at the end of the syllabus.

Course schedule

Experiments: Why and how

Plan for the class (3/25)

- Pre-class survey
  (https://tuck.qualtrics.com/jfe/form/SV_0x51FQLXm6AsNwO)
- The need for experiments (our motivation)
  - Green, Chapter 1
- Experiments in social science! (our approach)
  - Green, Chapter 4
- Our focus: Misperceptions (my expertise)
- Why we will replicate and extend prior research (our strategy)

Experimental design (3/27)

- Michael C. Frank et al. (2023). Experimentology: An Open Science Approach to Experimental Psychology Methods, Chapter 1
- Green, Chs. 3 (through 3.1.12 and Box 3.1, skip 3.11) and 6
• Michael C. Frank et al. (2023). *Experimentology: An Open Science Approach to Experimental Psychology Methods*, Chapter 9 (up to placebo effects; ignore case study)

• Small groups: Start to design a mini-experiment with a theory-based treatment (consult Box 3.1 in Green)

Qualtrics/Stata/R review (3/28–x-period)

• Review GOVT 10 videos, GOVT 10 lecture slides, and resources in GOVT syllabus

Experimental treatments (3/29)


• Diana C. Mutz (2021), “Improving Experimental Treatments in Political Science” in *Advances in Experimental Political Science*, James N. Druckman and Donald P. Green (eds.)

• Small groups: Work on mini-experiment treatments

Instrument construction and question wording (4/1)

• Thomas Leeper (N.d.). “The First Mistake in Crafting Survey Experiments.”


• Stefanie Stantcheva (2022) “How to Run Surveys: A Guide to Creating Your Own Identifying Variation and Revealing the Invisible” (sections 3–4 only)

• Assignment: Read about potential research topics and submit brief summaries (no more than a paragraph) of 3–5 ideas for potential experiments (due 3/31 8 PM)

• Assignment: Complete at least four surveys on Connect, Prolific, OpinionWorld, YouGov, Verasight, and/or Forthright and write a one-page reflection paper on what you learned, identifying both practices that should be emulated and those that should be avoided (due 4/1 1:10 PM; include screenshots showing payments or credits)\(^1\)

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\(^1\)If you are ineligible to work on these platforms or unable to complete enough surveys in time, the assignment can be completed via volunteer research participation on Volunteer Science and/or the Harvard Digital Lab for the Social Sciences (contact me for further details).
• Small groups: Refine mini-experiment question wording

Experimental design workshop (4/3)
• Design and analysis critique
  – Assignment: 3–5 questions about the experimental designs in the sample articles, the inferences the authors draw, and/or the statistical analyses they conducted (due 4/3 1:10 PM). Read them closely! We will work through the articles in detail during class.

• In-class exercise: Peer review of mini-experiment designs from other group

• Assignment: Final mini-experiment design (due 4/3 by 10 PM)
  – Conceptual, research, and statistical hypotheses
  – Independent variable (i.e., treatment/control), dependent variable (outcome variable or variables), and brief rationale for how they are operationalized
  – Summary of the experimental design (i.e., 2x2 between-subjects)
  – Non-experimental demographic variables you think are necessary to measure so you can describe the composition of your sample (measure them pre-treatment!)
  – Non-experimental variables that you plan to measure because they might change the effect of your treatment (measure them pre-treatment!)
  – Steps taken to minimize extraneous/confounding variables
  – Include your instrument from Qualtrics (Tools→Import/Export→Export survey to Word and also make a PDF from Tools→Import/Export→Print survey; make sure to select Show Survey Flow in the Export Survey to Word dialogue so I can see what content is being randomized and which group sees what)²

Statistical evaluation of experiments (4/4 [x-period]))

²See the notes on how to use Qualtrics and analyze data from it at the end of the syllabus.
• Assignment: Mini-experiment data must be fully collected and ready for analysis in class

• Green, Chs. 2 and 7

• Joe Simmons (2014). “MTurk vs. The Lab: Either Way We Need Big Samples.” Data Colada.

• Macartan Humphreys (2021). “I saw your RCT and I have some worries! FAQs.”

• Optional resources:
  – Relevant GOVT 10 lecture slides (Canvas)
  – Abby Long (N.d.). “10 Things to Know About Reading a Regression Table.” EGAP.
  – Hints on how to read and interpret regression tables (Canvas)
  – Impact Evaluation in International Development: Theory, Methods and Practice
  – The OpenIntro Statistics textbook (free!)
  – Online Statistics: An Interactive Multimedia Course of Study
  – The Statistical Reasoning online course provided by the Open Learning Initiative at Carnegie Mellon
  – Khan Academy probability and statistics videos
  – Statistics Gone Wrong

• Small groups: Mini-experiment data analysis workshop (create commented mini-experiment do-file or R script, data, and cleanly formatted results summary; due 4/5 5 PM)

Choosing a topic

Research proposal working session (4/8)

• Assignment: Submit draft experimental proposal (due 4/7 10 PM)

• Peer review: Pairs

• Consultation with me

Research topics (4/10)
• Assignment: Submit your experimental proposal (due 4/9 8 PM)

• Read other students’ experimental proposals (Canvas)
  – TBD

• Assignment: Drawing on the criteria listed below (for 4/12 class), propose at least one modification to/critique of each experiment we will discuss other than your own (post to thread on Slack by 4/10 1:10 PM)

Research topics II/decision (4/12)

• Read other students’ experimental proposals (Canvas)
  – TBD

• Assignment: Drawing on the criteria listed below, propose at least one modification to/critique of each experiment we will discuss other than your own (post to thread on Slack by 4/12 1:10 PM)

• Discussion: Consider all the possible approaches. Which is the best topic other than your own according to the following criteria?
  – Normative importance (does it deal with an important question for democracy?)
  – Theoretical contribution (new hypothesis/prediction—the more original or surprising, the better)
  – Methodological contribution (new technique used)
  – Empirical contribution (surprising or counter-intuitive result, contradicts previous findings, etc.)
  – Practical considerations (can we do it?)

• Goal: Choose research topic and basic research design

Pre-test design and analysis

Study design I (4/15)


• Readings for pilot group 1:
  – TBD

• Readings for pilot group 2:
  – TBD
Reference articles on online survey platforms and participants:


Resources on previous poll questions and misperceptions (optional; for background/reference)

- American National Election Studies Time Series Cumulative Data File (variable list)
- Previous academic studies in Google Scholar or Elicit
- Roper Center for Public Opinion Research: iPoll
- PollingReport.com

Assignment: Propose design of an experiment and outline of independent and dependent variables in instrument (can be in list/bullet format but make it as detailed as possible; due 4/15 12:00 PM)

Goal: Create preliminary experimental design(s)

Study design II (4/17)

- Complete experimental instrument draft in Google Docs (or hopefully Qualtrics) and assess (a) how much each concern in Table 1 of Kane (2024) applies and (b) what could be done to address those concerns

Goal: Complete and submit CPHS exemption application by Thursday night (including survey instruments)

Study design III (4/19)

- Assignment: Read Green Chapter 5 and complete CPHS human subjects training (documentation on Canvas due 4/18 8 PM)

Goal: Finalize design in Qualtrics (during class; see notes at end of syllabus)

Pre-test analysis I (4/22)
• Assignment: What hypotheses should we test and descriptive statistics/plots should we generate with the pre-test data? (one page in list or bullet form; due 4/21 11:59 PM)

• Small group assignment: Commented do-file or R script that makes dependent and independent variables and tests hypotheses plus one-page summary of results (due 4/24 1:10 PM)

Pre-test analysis II (4/24)
• Discuss experimental revisions and study choice based on pre-test results

Study design and scientific writing
Study design (4/29)
• Readings TBD

• Midterm course survey: https://tuck.qualtrics.com/jfe/form/SV_38ACzPiwTcW3Rbg

• Proposed revisions to final study theory and design (2–3 pages; due 4/28 11:59 PM)

Study design (5/1)
• Work with groups on design

Preregistration (5/2 [x-period])
• Michael C. Frank et al. (2023). Experimentology: An Open Science Approach to Experimental Psychology Methods, Chapter 11

• Prior class preregistrations (Files/Preregistration documents/ on Canvas)

Preregistration working session (5/3)
• Assignment: Brief draft preregistration (due 5/3 12:00 PM)

• Small groups: Review instrument and preregistration, identify omissions and flaws to correct before finalizing

Results analysis
Initial analysis of results (5/6)
• Individual and small group work analyzing study data

• Assignment: Commented do-file or R script producing descriptive statistics, statistical results, and graphs
Academic writing (5/8)

- Alex Coppock (N.d.). “Guidelines for writing up an experiment.”
- Erin Ackerman (2015), “‘Analyze This:’ Writing in the Social Sciences,” in Gerald Graff and Cathy Birkenstein (eds.), They Say, I Say: The Moves That Matter in Academic Writing, 3rd ed. (Canvas)
- Paul Dudenhefer (2007), “Writing about Your Findings”

Writing/results review (5/10)


Assignment: Compare/contrast the two articles above, identifying best practices in academic writing as well as problems to be avoided (1–2 pages; due 5/10 1:10 PM)

Assignment: Commented do-file or R script of descriptive statistics, statistical results, and graphs (due 5/11 5:00 PM)

Article writing (5/13)

- Working session

Peer feedback on article drafts (5/15)

- Assignment: Article draft (due 5/14 8 PM)

- Assignment: For each section of your partner’s draft, list at least two specific aspects of the manuscript that meet the objectives described in the article manuscript rubric at the end of the syllabus and at least two that need further development. With those criteria in mind, write at least three specific and constructive questions for the author that could help them think about how best to revise the paper (due 5/15 1:10 PM).

- Class discussion of paper progress

- Review and discussion of peer review responses
Revisions (5/16 [x-period])
- Working session
- Assignment: Article final (due 5/16 11:59 PM)
  - Reminder: All language must be your own! (exemption: class preregistration)

Revising/critiquing the article
Article discussion (5/22)
- Carefully read draft manuscript
- Small groups: Clean up errors and omissions
- Assignment: Ideas for short and long critiques (1 page; due 5/22 1:10 PM)

Short critiques (5/24)
- Assignment: Short critique draft (due 5/23 8 PM)
- Read draft short critique of assigned partner(s)
- Assignment: List at least two specific aspects of the critique(s) that meet the objectives described in the rubric at the end of the syllabus and at least two that need further development. With those criteria in mind, write at least two specific and constructive questions for the author(s) that could help them think about how best to improve their work (due 5/24 1:10 PM).
- Small groups: Feedback on short critiques
- Assignment: Short critique final (due 5/26 8 PM)

Long critiques (5/29)
- Assignment: Long critique draft (due 5/28 8 PM)
- Read draft long critique of assigned partner(s)
- Assignment: List at least two specific aspects of the critique(s) that meet the objectives described in the rubric at the end of the syllabus and at least two that need further development. With those criteria in mind, write at least three specific and constructive questions for the author(s) that could help them think about how best to improve their work (due 5/29 1:10 PM).
- Small groups: Feedback on long critiques
- Assignment: Long critique final (due 6/3 11:59 PM)
Experimental proposal topics

To identify a scientific research question we could seek to answer using an experiment in this fast-changing context, please skim the following resources and review articles to zero in on the work of greatest interest (use their citation lists as a guide!):

- “Political Misinformation and Conspiracy Theories” (my 2024 course syllabus)
  - “Misinformation warning labels are widely effective: A review of warning effects and their moderating features” (2023)
  - “Effective correction of misinformation” (2023)
  - “How orientations to expertise condition the acceptance of (mis)information” (2023)
  - ‘Factual corrections: Concerns and current evidence” (2024)
  - “Meta-perception and misinformation” (2023)
  - “Interventions to counter misinformation: Lessons from the Global North and applications to the Global South” (2024)
  - “Researching and countering misinformation in the Global South” (2024)
  - “The shared psychological roots of prejudice and conspiracy theory belief” (2024)
  - “Refuting misinformation: Examining theoretical underpinnings of refutational interventions” (2024)
  - “User correction” (2024)
  - “‘It’s Not Literally True, But You Get the Gist:’ How nuanced understandings of truth encourage people to condone and spread misinformation” (2024)
  - “Fighting Misinformation Among the Most Vulnerable Users” (2024)
- “A framework for understanding reasoning errors: From fake news to climate change and beyond” (2024)
- “What do we study when we study misinformation? A scoping review of experimental research (2016-2022)” (2023)
- “Understanding and Combating Misinformation Across 16 Countries on Six Continents” (2023)
- *Current Opinion in Psychology* special issue: “Conspiracy theories” (2023 special issue)
• “Individual, intergroup and nation-level influences on belief in conspiracy theories” (2023)

• “The efficacy of interventions in reducing belief in conspiracy theories: A systematic review” (2023)

• “The psychological drivers of misinformation belief and its resistance to correction” (2022)

• “Misinformation: susceptibility, spread, and interventions to immunize the public” (2022)

• “How to Combat Health Misinformation: A Psychological Approach” (2022)

• “Nudging Social Media toward Accuracy” (2022)

• “A Practical Guide to Prebunking Misinformation” (2022)

• “Psychological Inoculation against Misinformation: Current Evidence and Future Directions” (2022)

• “Toolbox of Interventions Against Online Misinformation and Manipulation” (2022)

• “How can we combat online misinformation? A systematic overview of current interventions and their efficacy” (2022)

• “Why ‘backfire effects’ do not explain the durability of political misperceptions” (2021)

• “The Psychology of Fake News” (2021)

• “Facts and myths about misperceptions” (2020)

• “Political Misinformation” (2020)

• “Misinformation and Its Correction”

• “Communicating fact checks online” (2020)

• “Who is most likely to believe and to share misinformation?” (2020)

• “Understanding Conspiracy Theories” (2019)

• “The Science of Fake News” (2018; see online appendix for additional citations)

• “Avoiding the Echo Chamber About Echo Chambers: Why Selective Exposure To Like-Minded Political News Is Less Prevalent Than You Think” (2018)
• “Social Media, Political Polarization, and Political Disinformation: A Review of the Scientific Literature” (2018)


• “Misinformation and Its Correction: Continued Influence and Successful Debiasing” (2012)

These specific research articles may be particularly relevant (but do not limit yourself to them):

• My current research on misinformation

• “The Liar’s Dividend: Can Politicians Claim Misinformation to Evade Accountability?”

• “Emotion- versus Reasoning-based Drivers of Misinformation Sharing: A field experiment using text message courses in Kenya”

• “Battling the Coronavirus Infodemic Among Social Media Users in Africa”

• “Time and Skeptical Opinion Content Erode the Effects of Science Coverage on Climate Beliefs and Attitudes”

• “Psychological Inoculation Improves Resilience Against Misinformation on Social Media”

• “Fighting COVID-19 Misinformation on Social Media: Experimental Evidence for a Scalable Accuracy Nudge Intervention”

• “The Ephemeral Effects of Fact-Checks on COVID-19 Misperceptions in the United States, Great Britain and Canada”

• “Shifting Attention to Accuracy Can Reduce Misinformation Online”

• “Social Motives for Sharing Conspiracy Theories”

• “Elite Rhetoric Can Undermine Democratic Norms”

• “Deepfake detection by human crowds, machines, and machine-informed crowds”

• “Evaluating the Effects of Vaccine Messaging on Immunization Intentions and Behavior: Evidence from Two Randomized Controlled Trials in Vermont”

• “Timing Matters When Correcting Fake News”

• “A Digital Media Literacy Intervention Increases Discernment Between Mainstream and False News in the United States and India”
• “Real Solutions for Fake News? Measuring the Effectiveness of General Warnings and Fact-Check Banners in Reducing Belief in False Stories on Social Media”

• Research by Gordon Pennycook and David Rand

When you find an article that is especially interesting or relevant, I recommend reviewing the articles it cites as well as those listed as citing the article in Google Scholar. (Please consult me if you are having trouble formulating a topic or identifying the relevant literature for a topic of particular interest.)
<table>
<thead>
<tr>
<th>Criteria</th>
<th>A</th>
<th>A-/B+</th>
<th>B/B-</th>
<th>C/D/F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction and theory</td>
<td>Precisely identifies research hypotheses and provides strong substantive and theoretical motivations for research project</td>
<td>Identifies research hypotheses and provides substantive and theoretical motivations for research project</td>
<td>Hypothesis described but not precisely or correctly specified; motivations incomplete or unconvincing</td>
<td>Theory incorrectly or vaguely stated; lacks appropriate substantive and/or theoretical motivation</td>
</tr>
<tr>
<td>Methods</td>
<td>Specifies all important aspects of how study was conducted in detailed and replicable fashion; convincingly motivates and defends key choices in design process</td>
<td>Specifies most important aspects of how study was conducted in relatively clear manner; addresses possible concerns about key choices in design process</td>
<td>Specifies some important aspects of how study was conducted; methods not always well explained; does not sufficiently address possible concerns about choices in design process</td>
<td>Does not provide or clearly explain most important aspects of how study was conducted; lacks appropriate justification of key design choices</td>
</tr>
<tr>
<td>Results</td>
<td>Figures and tables illustrate findings in an intuitive and easy-to-understand way; text explains results precisely and without statistical errors; investigation of hypothesis thorough and detailed</td>
<td>Figures and tables illustrate findings reasonably clearly; textual explanations of results is clear; statistical approach largely correct and error-free</td>
<td>Figures and tables unappealing or poorly constructed; some imprecision or errors in textual discussion of results; hypotheses not thoroughly investigated</td>
<td>Figures and tables sloppy or hard to understand; text vague or incorrect; statistical errors in analysis; cursory investigation of hypotheses</td>
</tr>
<tr>
<td>Discussion and conclusions</td>
<td>Perceptive and detailed discussion of limitations of findings, potential explanations for those findings, substantive and theoretical conclusions, and possible future research</td>
<td>Clear and thoughtful discussion of limitations of findings, potential explanations for those findings, substantive and theoretical conclusions, and possible future research</td>
<td>Some useful discussion of limitations of findings, potential explanations for those findings, substantive and theoretical conclusions, and possible future research</td>
<td>Vague, incomplete, or unconvincing discussion of limitations, implications, and conclusions</td>
</tr>
<tr>
<td>Writing quality</td>
<td>Exceptionally well-written—precise, clear, and mistake-free; concise and elegant</td>
<td>Very well-written—clear and articulate; few or no typos; not too long</td>
<td>Moderately well-written; some typos; wordy or vague</td>
<td>Unclear, awkward, or imprecise writing; numerous typos; too long and wordy or too short and vague</td>
</tr>
</tbody>
</table>
## Critiques rubric

<table>
<thead>
<tr>
<th>Criteria</th>
<th>A</th>
<th>B</th>
<th>C/D/F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis/argument</td>
<td>Clear, strong arguments that go beyond description, address</td>
<td>Discernible arguments but not strong/clear enough or too much</td>
<td>Unclear or weak arguments; mainly description or assertion; incomplete</td>
</tr>
<tr>
<td></td>
<td>important objections</td>
<td>description</td>
<td></td>
</tr>
<tr>
<td>Originality</td>
<td>Creative new arguments or approaches—combines or applies theories in new ways</td>
<td>Some analytical originality in approach; opportunities for greater creativity</td>
<td>Little originality; relies mainly on arguments and evidence from class/sources</td>
</tr>
<tr>
<td>Evidence</td>
<td>Numerous, varied, and relevant details and facts provided in support of arguments</td>
<td>Details and facts support arguments, but more needed or some lacking relevance</td>
<td>Some details and facts to support arguments, but not enough and/or lack relevancy</td>
</tr>
<tr>
<td>Use of course concepts</td>
<td>Excellent understanding of course concepts and insightful application to research topic</td>
<td>Conveys familiarity with course concepts; applies concepts to topic appropriately</td>
<td>Basic course concepts not applied appropriately; incorrect or incomplete</td>
</tr>
<tr>
<td>Organization</td>
<td>Clear, logical organization that develops argument appropriately; does not stray off topic</td>
<td>Organization not totally clear; some digressions or lack of needed structure</td>
<td>Organization is unclear and/or paper strays substantially from agreed-upon topic</td>
</tr>
<tr>
<td>Quality of expression</td>
<td>Excellent grammar, vocabulary, and word choice</td>
<td>Some errors, imprecision, or room for improvement in writing</td>
<td>Awkward, imprecise, sloppy, or error-filled writing</td>
</tr>
</tbody>
</table>
Notes on survey design, Qualtrics, and data processing

Survey instrument suggestions:

- These resources can help you design effective surveys:
  - Pew Research Center: Questionnaire design
  - Pew Research Center: How do you write survey questions that accurately measure public opinion?
  - Harvard University Program on Survey Research: Tips on Question Wording
  - Stephanie Stantcheva at Harvard has written a guide to conducting survey research that has lots of useful advice

In general, though, you should try to avoid reinventing the wheel whenever possible. See how other surveys word their questions and follow those conventions by searching the Roper Center’s iPoll database of prior survey research or other standard surveys (Gallup, the American National Election Studies, the General Social Survey, etc.). By following this approach, you will increase the comparability of your findings to prior research.

- It’s best practice to start a survey with a consent form so please include an adapted version of this at the beginning in your mini-experiment:

  This survey is a class project for GOVT 83.21 / QSS 30.03 being conducted by [your names]. We ask for your attention for a few minutes and we thank you for your attention and your responses. Your participation is voluntary and you may decline the survey or withdraw at any time. No information that identifies you will be collected or retained. However, any online interaction carries some risk of being accessed. Do you consent to participate in the survey?
  - Yes
  - No [end survey in Survey Flow if they choose this]

- You should collect basic demographics for every participant so you can describe who took part in your survey. A simple set of baseline demographic variables are class year, gender, and race. You might consider whether any other characteristics would be important to measure given your research question, however (e.g., affiliation, financial aid status, etc.). Measures of these characteristics can be placed at the beginning or end of your survey but be careful about making your study too long or measuring characteristics at the end that could be affected by your treatment.

- Student participants are likely to fail to read long blocks of text and to drop out of time-consuming studies — remember, many will take your
experiment during a spare minute or two on their phone. Your study should be very brief and use a high-impact experimental intervention.

- Beware of ceiling and floor effects in measuring people's attitudes and beliefs — on some topics, people's attitudes don’t have much room to move up or down, respectively.

- If your study includes any deception (which must be both mild and ethical!), please include an adapted version of this debriefing at the end:

  Thank you for answering these questions. The purpose of this project is to [describe the goal of your project]. During this survey, participants were [explain what happened and clarify if they saw anything that isn’t real]. Thank you again for your participation. Please do not share any information about the nature of this study with other potential participants. Should you have any questions about this study, please contact Prof. Brendan Nyhan at brendan.j.nyhan@dartmouth.edu.

- Be sensitive to respondents in phrasing your questions. Provide an alternate option to the male/female question, for instance. Consider also whether you are asking any questions that respondents are likely to answer dishonestly (or skip) given the way the question is phrased.

- Before you launch, I recommend reviewing the look and feel and survey options settings (anonymize responses, prevent multiple submissions, etc.). Ask me if you have questions about these.

- Make sure to close the survey before you download data so it records all incomplete responses.

**Qualtrics programming:**

- Dartmouth Qualtrics FAQs
- Qualtrics video tutorials on Basic Building and Distributing and Advanced Building

**Other Qualtrics notes:**

- There is a great deal of information online on how to create surveys in Qualtrics that can help you get started, including webinars on “Basic Building and Distributing” (https://www.youtube.com/watch?v=hWM1z4uBP1U&feature=youtu.be) and “Advanced Building” (https://www.youtube.com/watch?v=40cNA1a-8Fs&feature=youtu.be).
• Qualtrics also has very useful help files that you can find using simple Google searches. For instance, to create a new block, you would search for **qualtrics new block**, which will lead you to [http://www.qualtrics.com/university/researchsuite/advanced-building/blocks-and-block-options/about-blocks](http://www.qualtrics.com/university/researchsuite/advanced-building/blocks-and-block-options/about-blocks).

• In our experiments, we typically want to randomize at the block level in Qualtrics - see [http://www.qualtrics.com/university/researchsuite/advanced-building/survey-flow/block-randomization](http://www.qualtrics.com/university/researchsuite/advanced-building/survey-flow/block-randomization). In the simplest version, you put the treatment condition in one block, control condition in another, and randomly present one (see instructions at link above), but this design can easily be made more complex as needed.  
  (Note: You must have at least two blocks so that Qualtrics can randomize among them. Do not turn on “Evenly present elements” — we want a random draw for each respondent.)

• In your mini-experiment, typically want to randomize at the block level in Qualtrics. In the simplest version, you put the treatment condition in one block, control condition in another, and randomly present one (see instructions at link above), but this design can easily be made more complex as needed.

• I recommend structuring your mini-experiment along these lines: a consent block with just the consent form (make sure to end survey if they say no!), a pre-treatment block with demographics questions and other covariates of interest, a randomizer sending them to one of the blocks for the experimental conditions, and an outcome measure/end of survey block.

• I recommend randomizing by going to the Survey Flow, putting a randomizer at the beginning of the survey, putting two elements in it that are both embedded data, and having it randomly select one (note: do not turn on “Evenly present elements”). For the elements, set embedded data for each so that the variable Group equals “Treatment” or “Control”. Then branch later in the survey so that if Group equals “Treatment” the treatment block is displayed and the equivalent for the control block.

• You can also randomize question order and the order of response options, insert images, etc. If you want to do it, Qualtrics probably can! Just Google for how.

• After completing your study in Qualtrics and downloading the data, you will need to process it slightly before it is ready for use in Stata. Usually the first row in a data file consists of variable names and the observations begin on the second row, but Qualtrics puts variable labels or question wording in row 2 (Excel) or rows 2 and 3 (CSV) below the
variable name, which causes Stata to create a phantom observation and treat all of your variables as strings. You should delete the offending row(s), save the file as a new version of the spreadsheet, and import that file (once saved) into Stata.

- Qualtrics defaults to the rather overbearing Dartmouth theme but you can change the appearance to something more plain by selecting the “Look and feel” tab (the third option on the left sidebar under Survey; looks like a paint roller) and changing the theme to Presets and choosing Blank.

- Your data will come from Qualtrics in a form that often doesn’t mean anything. For instance, if your treatment variable `qualtricstr` has the values of 1 for treatment and 4 for control, you need to make a new variable in Stata like this:

  ```
  gen treatment=. /*missing as default*/
  replace treatment=0 if qualtricstr==1
  replace treatment=1 if qualtricstr==4
  ```

  If your outcome variable starts with low values as high or in some other form that is nonsensical to analyze directly, then you need to make a new variable where the values make sense. Consider an Obama approval variable that comes in from Qualtrics as 1=approve, 2=disapprove, 3=don’t know. You need to make a new variable to analyze where high values represent what the variable is called and/or means like this:

  ```
  gen obamaapp=.
  replace obamaapp=1 if approve==2
  replace obamaapp=2 if approve==3 /*treats DK as neutral/middle*/
  replace obamaapp=3 if approve==1
  ```

- Once your data are imported into Stata and you have made new variables to work with in this way (when necessary), I recommend consulting the sample .do file on Canvas for syntax to follow in performing common statistical procedures.