# GOVT 83.21: **Experiments in Politics**

Instructor: Prof. Brendan Nyhan Classroom: Choate House

Office: Silsby 305

Schedule: TTH 10 AM-11:50 AM Email: nyhan@dartmouth.edu x-period: Wed. 3 PM-3:50 PM Phone: 603/646-2894 Office hours: W 9–11 AM, 305 Silsby

#### Course overview

This class is a lab-style seminar in which we will design, field, and analyze an experimental study of political misperceptions. Our ultimate goal is to publish a scholarly article in a peer-reviewed journal of political science—an ambitious project that will require a substantial commitment from each student. Flexibility will also be essential since the course will evolve during the quarter based on the needs of the project. In particular, I ask that you keep the x-period open so we can use it for ad hoc meetings. I have scheduled meetings for the x-period on April 3, 10, and 17 but we may need to meet at that time during other weeks.

## **Prerequisites**

The course has no formal prerequisites, but GOVT 10 or an equivalent course is strongly recommended.

### Plan for 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.

In the second phase of the course, we will determine the focus of our research. With my guidance, students will survey recent articles in political science and psychology, identify a promising theory or unresolved question related to misperceptions, and write a short paper proposing an experiment that we could carry out. After these proposals have been presented, the class will decide which question to pursue.

We will then 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 Amazon's Mechanical Turk, Qualtrics, 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 a "Flash Report" in the Journal of Experimental Social Psychology (2500 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 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

### Course materials

The following book is required:

• Dana S. Dunn. Research Methods for Social Psychology, 2nd Edition.

It can be purchased or rented in physical form from Amazon or can be rented as an eTextbook from CourseSmart. (Note: It is not available locally.)

A few chapters from other books will be made available as scanned PDFs on Blackboard 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.)

### Communication

The class will be run through Blackboard. I will use it to email announcements to you, to provide PDFs of all assigned readings that are not available online, and to facilitate collaboration via the wiki tool. Please submit your work to me through its assignments function rather than by email. However, if you have questions, feel free to come to my office hours or email me.

### Academic integrity

Students are responsible for understanding the academic integrity rules at Dartmouth. Explanations of integrity rules and principles can be found at http://www.dartmouth.edu/~uja/. 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 in the class. Details on citing sources are available at http://www.dartmouth.edu/~writing/sources. These academic integrity issues are especially important since we will be conducting original research in the class. Please see me immediately if you have any questions or concerns.

### Students with disabilities

Students with disabilities enrolled in this course who may need disability-related classroom accommodations are encouraged to make an appointment to see me before the end of the second week of the term. All discussions will remain confidential, although the Student Accessibility Services office may be consulted to discuss appropriate implementation of any accommodation requested.

### Religious observances

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 before the end of the second week of the term to discuss appropriate accommodations.

# Assignments and grading

Grading in this class will be based on the components described below. All work is due two hours before the start of class (i.e., 8 AM) unless otherwise noted. Late work will not be accepted without prior permission.

### Class participation—20%

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 write or edit documents, analyze data, etc. during the seminar. It is thus essential for you to bring your laptop to class so that you can participate in these activities.

### One-page assignments and out-of-class participation—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, or on the Blackboard wiki 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 4/7; optional draft due 4/4)—15%

Each of you will work with me to select a research topic from the list at the end of the syllabus or to choose a related topic (which I must approve). You will then 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, read the required overview articles on correcting misperceptions listed at the end of the syllabus as well as Ch. 2 and Appendix B in Dunn.)

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 your fellow students can discuss your area intelligently. You can't possibly 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, and the dependent variable(s).

Since this will be a new type of assignment for most of you, I will review draft papers and provide feedback if you submit them to me by April 4 at 5 PM (optional). I will also make sample proposals from previous students available on Blackboard. The proposal is due 4/7 at 5 PM.

### Flash report (due 5/19 at 5 PM; drafts due 5/12 at 5 PM)—30%

Each student will write a short paper reporting the results of the experiment that adheres to the formatting and word limits of a "Flash Report" in the *Journal of Experimental Social Psychology* (2500 words – see notes on content

under "Article structure" in JESP's guide for authors). You will have a chance to get feedback from your classmates on a draft of your article before it is due. Examples of paper sections written by previous students will be available on Blackboard. 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 5/24 at 5 PM). You will get feedback from your classmates on a draft (due 5/22 at 10 AM) before submitting a final version. The goal is to give you experience with the critique and revision process.

Students will then write a 1500-2500 word critique of the article as a whole for their final paper. It should propose further revisions and suggest future research projects that build on our results (20%, due 6/2 at 5 PM). As in the cases above, I will provide sample papers from previous students on Blackboard for you to review. Please submit a short summary or proposal for your long critique before our final class (due 5/26 at 5 PM).

The rubric that I will use to evaluate your critiques is provided at the end of the syllabus.

### Course schedule

### Experiments: Why and how

Rationale for experiments/plan for the class (3/26)

- Why experiments? (real world—optional but recommended)
  - Sasha Issenberg. "Nudge the Vote." New York Times Magazine.
     October 29, 2010.
  - Issenberg. "The Death of the Hunch." Slate, May 22, 2012.
  - Issenberg. "Obama Does It Better." Slate, October 29, 2012.
  - Issenberg. "Why Obama Is Better at Getting Out the Vote." Slate, November 5, 2012.
- Why experiments? (academic)
  - Alan S. Gerber and Donald P. Green (2012). Field Experiments: Design, Analysis, and Interpretation. Pages 1–8 (Blackboard).
  - James N. Druckman, Donald P. Green, James H. Kuklinski and Arthur Lupia (2011). "Experimentation in Political Science" and "Experiments: An Introduction to Core Concepts." In Druckman, Green, Kuklinski, and Lupia (eds.), Cambridge Handbook of Experimental Political Science (Blackboard).
- Why misperceptions?
  - Clay Ramsay, Steven Kull, Evan Lewis (2010). "Misinformation and the 2010 Election: A Study of the US Electorate."
     WorldPublicOpinion.org. December 10, 2010.
- Our plan of attack
  - Gary King. 2006. "Publication, publication." *PS: Political Science and Politics*. 119–121 (stop where it says "Ground Rules").

Causality and experimental design (3/28)

- Annabel Ness Evans and Bryan J. Rooney (2011). *Methods in Psychological Research*, Second Edition: Chapters 4 and 7 (Blackboard).
- Dunn, Chapter 4 (Blackboard)
- Druckman, Green, Kuklinski, and Lupia (2011). "Experiments: An Introduction to Core Concepts" (appendix only). In Druckman, Green, Kuklinski, and Lupia (eds.), Cambridge Handbook of Experimental Political Science (Blackboard).
- Sample article 1: Anthony Bastardi, Eric Luis Uhlmann, and Lee Ross (2011). "Wishful Thinking: Belief, Desire, and the Motivated Evaluation of Scientific Evidence." *Psychological Science* 22(6): 731–732.

- Sample article 2: David Gal and Derek D. Rucker (2010). "When in Doubt, Shout! Paradoxical Influences of Doubt on Proselytizing." *Psychological Science* 21(11): 1701–1707.
- Due before class: 3–5 questions about the experimental designs in the sample articles, the inferences the authors draw, or the statistical analyses they conducted. Read them closely! We will work through them in detail during class.
- $\bullet$  Small group: Design your own mini-experiment (final design due 3/29 at 5 PM)
- Required: Submit research topic rankings

Statistical evaluation of experiments (4/2)

- Evans and Rooney, pp. 269–293, 299–317 (Blackboard)
- Dunn, Ch. 11
- Mini-experiments—what happened? What could you have done better?
- Small groups: How to analyze the data

Data analysis tutorial (4/3-x-period)

- Getting Started With Stata, Ch. 3 (Blackboard)
- Sample Stata do file (Blackboard)

Measurement and manipulations (4/4)

- Dunn, Chapters 6–9
- Small group assignment: Commented mini-experiment do-file and cleanly formatted results summary
- Small groups: How could measurement and manipulations of mini-experiment have been improved
- Proposed experiments discussion

### Choosing a topic

Research topics I (4/9)

- Student experimental proposals (Blackboard)
- Assignment: Propose at least one modification to/critique of a proposed experiment for each topic other than your own (up to 2 pages; can be in list/bullet format)

• Small groups: Discuss ideas for experimental modifications

## Research topics II (4/10—x-period)

- Assignment: Consider all the possible approaches and write a short essay arguing which research topic is best according to the following criteria (1 page):
  - 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 (4/16)

- Read relevant articles on pre-test topics (TBD)
- Assignment: Propose design of an experiment and outline of independent and dependent variables in instrument (1 page; can be in list/bullet format)
- Goal: Create preliminary experimental design

Study design II (4/17—x-period)

- Draft experimental instrument in Google Docs
- Goal: Revise experiment in Qualtrics

Study design III/CPHS (4/18)

- Dunn Ch. 3
- Assignment: Complete CPHS human subjects training
- Draft CPHS exemption application
- Goal: Revise and submit exemption application
- Goal: Finalize experiment in Qualtrics

Pre-test results I (4/23)

- Small group assignment: Commented do-file (with mock variable names) and one-page summary of hypotheses and expectations
- Goal: Review/understand pre-test results

### Pre-test results II (4/24—**x-period**)

- Small group assignment: Commented do-file and summary of results
- Goal: Consensus understanding of pre-test results

### Experimental revisions (4/25)

- Assignment: Proposed revisions to experiment (1 page)
- Discuss experimental revisions based on pre-test results

### Writing the article

Components and structure of an article (4/30)

- Dunn Ch. 12, Appendix C
- Gary King (2006). "Publication, publication." *PS: Political Science and Politics.* 121–125 (start at the section on style).
- Brendan Nyhan, Jason Reifler, and Peter Ubel (2013). "The Hazards of Correcting Myths about Health Care Reform." *Medical Care* 51(2): 127–132.
- Assignment: One-page reaction paper to Nyhan, Reifler, and Ubel (may include comparison/contrast to recommendations in Dunn or King, suggestions for improvements, questions to discuss in class, or reflections on the differences from other types of academic writing)

# Best practices in scientific writing (5/2)

- Shiri Lev-Ari and Boaz Keysar (2010). "Why don't we believe non-native speakers? The influence of accent on credibility." *Journal of Experimental Social Psychology* 46(6): 1093–1096.
- David K. Sherman, Cynthia Gangi, and Marina L. White (2010). "Embodied cognition and health persuasion: Facilitating intentionbehavior consistency via motor manipulations." *Journal of Experimental Social Psychology* 46(2): 461–464.
- Assignment (2–3 pages): Compare/contrast the two articles above, identifying best practices in academic writing as well as problems to be avoided.
- Small groups: Outline needed results, tables/figures, etc. for pre-test results report

### Results analysis

Initial analysis of results I (5/7)

- Small group assignment: Pre-test results report
- Reflections and critiques
- Small group data analysis

Initial analysis of results II (5/9)

- Small group data analysis
- Finalize working do-file

Group feedback on article drafts (5/14)

- Your partner's article draft
- Assignment: For each section of your partner's draft, list at least two specific aspects of the manuscript that meet the objectives under "Article structure" in JESP's guide for authors 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.
- Class discussion of paper progress
- Review and discussion of peer review responses

Revisions (5/16)

• Working session

# Revising the article

Article discussion (5/21)

- Carefully read draft manuscript
- Small groups: Clean up errors and omissions
- Assignment: Ideas for short and long critiques (1 page)

Short critiques (5/23)

- Other students' draft short critiques
- Assignment: Draft short critique responses (1 paragraph each)
- Small groups: Feedback on critiques

# Long critiques (5/28)

- $\bullet$  Other students' long critique proposals
- $\bullet$  Assignment: Draft proposal responses (1 paragraph each)
- $\bullet$  Small groups: Feedback on proposals

# Paper topics

All of these readings can be accessed by clicking on the hyperlink in the article title below. Make sure to read Ch. 2 and Appendix B of Dunn before starting your paper.

# Overview: The difficulty of correcting misperceptions (everyone)

When Corrections Fail: The Persistence of Political Misperceptions Misinformation and Fact-checking: Research Findings from Social Science Misinformation and Its Correction: Continued Influence and Successful Debiasing

# Political science research on misinformation and corrections

Misinformation and the Currency of Democratic Citizenship Same Facts, Different Interpretations: Partisan Motivation and Opinion on Iraq

Rumors, Truth, and Reality: A Study of Political Misinformation The Hazards of Correcting Myths About Health Care Reform

### Rumors: Communications and psychology research

Rumor denials as persuasive messages: Effects of personal relevance, source, and message characteristics

Source characteristics in denying rumors of organizational closure: Honesty is the best policy

Rumor Has It: The Moderating Effect of Identification on Rumor Impact and the Effectiveness of Rumor Refutation

Rumors and the Internet in the 2008 U.S. Presidential election Troubling Consequences of Online Political Rumoring

### Memory and misinformation

Correcting false information in memory: Manipulating the strength of misinformation encoding and its retraction

Terrorists brought down the plane! No, actually it was a technical fault:

Processing corrections of emotive information

Evolving Informational Credentials: The (Mis)Attribution of Believable Facts to Credible Sources

Memory for Fact, Fiction, and Misinformation

Nonprobative photographs (or words) inflate truthiness

False memories of fabricated political events

# Mortality salience

Deliver us from Evil: The Effects of Mortality Salience and Reminders of 9/11 on Support for President George W. Bush

Two Decades of Terror Management Theory: A Meta-Analysis of Mortality Salience Research

# Self-affirmation and ego depletion

When Beliefs Yield to Evidence: Reducing Biased Evaluation by Affirming the Self

Bridging the Partisan Divide: Self-Affirmation Reduces Ideological

Closed-Mindedness and Inflexibility in Negotiation

Opening the Political Mind? The effects of self-affirmation and graphical information on factual misperceptions

Acknowledging the Skeletons in Our Closet: The Effect of Group Affirmation on Collective Guilt, Collective Shame, and Reparatory Attitudes Self-affirmation and self-control: affirming core values counteracts ego depletion

The role of cognitive resources in determining our moral intuitions: Are we all liberals at heart?

# Information selection and processing

Hot Cognition or Cool Consideration? Testing the Effects of Motivated Reasoning on Political Decision Making Motivated Skepticism in the Evaluation of Political Beliefs Self-regulation and selective exposure: The impact of depleted self-regulation resources on confirmatory information processing

# "Cultural cognition"

The Tragedy of the Risk-Perception Commons: Culture Conflict, Rationality Conflict, and Climate Change Cultural Cognition of Scientific Consensus

# Conspiracy theories

Lacking control increases illusory pattern perception

An Existential Function of Enemyship: Evidence That People Attribute Influence to Personal and Political Enemies to Compensate for Threats to Control

A Dual-Motive Model of Scapegoating: Displacing Blame to Reduce Guilt or Increase Control

The Kennedy Assassination, Unidentified Flying Objects, and Other Conspiracies: Psychological and Organizational Factors in the Perception of "Cover-up"

Conspiracy Theories are for Losers

Conspiracy Theories, Magical Thinking, and the Paranoid Style(s) of Mass Opinion

I think BLS data are BS: The Consequences of Exposure to, and Questions About, Conspiracy Theories (Blackboard)

A major event has a major cause: Evidence for the role of heuristics in reasoning about conspiracy theories (Blackboard)

## Social category differences and smear acceptance

Smearing the opposition: Implicit and explicit stigmatization of the 2008 US Presidential candidates and the current US President

Is Obama the Anti-Christ? Racial priming, extreme criticisms of Barack Obama, and attitudes toward the 2008 US presidential candidates

The Effects of Semantics and Social Desirability in Correcting the Obama Muslim Myth

Biased Assimilation, Attitude Polarization, and Affect in Reactions to Stereotype-Relevant Scientific Information

Undermining the corrective effects of media-based political fact checking? The role of contextual cues and naïve theory (Blackboard)

# Negation and corrections

Incrimination Through Innuendo: Can Media Questions Become Public Answers?

"I am not guilty" vs "I am innocent": Successful misperception negation may depend on the schema used for its encoding

When "Just Say No" is not enough: Affirmation versus negation training and the reduction of automatic stereotype activation

Spinozas error: Memory for truth and falsity

The Effects of Semantics and Social Desirability in Correcting the Obama Muslim Myth

### Ambivalence and attitude certainty

Attitudinal Ambivalence and Message-Based Persuasion: Motivated Processing of Proattitudinal Information and Avoidance of Counterattitudinal

Information

A new look at the consequences of attitude certainty: The amplification hypothesis

# "Matching," affect, and persuasion

"Think" Versus "Feel" Framing Effects in Persuasion Cognitive and affective matching effects in persuasion: An amplification perspective

# Majority/minority dynamics and social context effects in persuasion

The effects of minority/majority source status on attitude certainty: A matching perspective

Beyond attitude consensus: The social context of persuasion and resistance The impact of the social context on resistance to persuasion: Effortful versus effortless responses to counter-attitudinal information

## Source effects and elite configurations

How Elite Partisan Polarization Affects Public Opinion Formation Shot by the Messenger: Partisan Cues and Public Opinion Regarding National Security and War

Who Said What? The Effects of Source Cues in Issue Frames Source Credibility and Attitude Certainty: A Metacognitive Analysis of Resistance to Persuasion

Partisan Perceptual Bias and the Information Environment Featuring Skeptics in News Media Stories About Global Warming Reduces Public Beliefs in the Seriousness of Global Warming

## Belief perseverance and the continued influence effect

Perseverance in self-perception and social perception: Biased attributional processes in the debriefing paradigm

Self-enhancement and belief perseverance

Experiments on partisanship and public opinion: Party cues, false beliefs, and Bayesian updating, Chapter 2

Beliefs Don't Always Persevere: How political figures are punished when positive information about them is discredited

### The continued influence effect

Sources of the continued influence effect: When misinformation in memory affects later inferences

The continued influence of misinformation in memory: What makes a correction effective?

Explicit warnings reduce but do not eliminate the continued influence of misinformation

### The illusion of truth effect

How warnings about false claims become recommendations Metacognitive experiences and the intricacies of setting people straight: Implications for debiasing and public information campaigns Rumors, Truth, and Reality: A Study of Political Misinformation

### Distortions in social dissemination of information

Communicating Stereotype-Relevant Information: Is Factual Information Subject to the Same Communication Biases as Fictional Information? Maintaining cultural stereotypes in the serial reproduction of narratives

## Emotional responses to political information

Civic Engagements: Resolute Partisanship or Reflective Deliberation The Affective Tipping Point: Do Motivated Reasoners Ever "Get It"? How I Vote Depends on How I Feel: The Differential Impact of Anger and Fear on Political Information Processing Mad enough to see the other side: Anger and the search for disconfirming

Mad enough to see the other side: Anger and the search for disconfirming information

### Resistance to scientific evidence

Biased Assimilation, Attitude Polarization, and Affect in Reactions to Stereotype-Relevant Scientific Information

The Scientific Impotence Excuse: Discounting Belief-Threatening Scientific Abstracts

Wishful Thinking: Belief, Desire, and the Motivated Evaluation of Scientific Evidence

# Interventions to reduce motivated reasoning

Overcoming Intuition: Metacognitive Difficulty Activates Analytic Reasoning Disfluency disrupts the confirmation bias

Polarized Attitudes Toward the Ground Zero Mosque are Reduced by High-Level Construal

Political Extremism is Supported by an Illusion of Understanding

# Flash report rubric

| Criteria     | A  | A-/B+                                    | B/B-                                  | C/D/F                                    |
|--------------|--|--|---------------------------------------|--|
| Introduction | Precisely identifies                         | Identifies research                      | Hypothesis de-                        | Theory incorrectly                       |
| and theory   | research hypotheses                          | hypotheses and                           | scribed but not pre-                  | or vaguely stated;                       |
|              | and provides strong                          | provides substantive                     | cisely or correctly                   | lacks appropri-                          |
|              | substantive and the-                         | and theoretical                          | specified; motiva-                    | ate substantive                          |
|              | oretical motivations                         | motivations for                          | tions incomplete or                   | and/or theoretical                       |
| Methods      | for research project Specifies all im-       | research project                         | unconvincing                          | motivation                               |
| Methods      | Specifies all important aspects              | Specifies most important aspects         | Specifies some important aspects      | Does not provide or clearly explain most |
|              | of how study was                             | of how study was                         | of how study was                      | important aspects                        |
|              | conducted in de-                             | conducted in rela-                       | conducted; methods                    | of how study was                         |
|              | tailed and replicable                        | tively clear manner;                     | not always well-                      | conducted: lacks                         |
|              | fashion: convinc-                            | addresses possible                       | explained; does not                   | appropriate justifi-                     |
|              | ingly motivates and                          | concerns about key                       | sufficiently address                  | cation of key design                     |
|              | defends key choices                          | choices in design                        | possible concerns                     | choices                                  |
|              | in design process                            | process                                  | about choices in                      |  |
|              |  |  | design process                        |  |
| Results      | Figures and tables                           | Figures and tables                       | Figures and tables                    | Figures and tables                       |
|              | illustrate findings                          | illustrate findings                      | unappealing or                        | sloppy or hard to                        |
|              | in an intuitive and                          | reasonably clearly;                      | poorly constructed;                   | understand; text                         |
|              | easy-to-understand                           | textual explanations                     | some imprecision                      | vague or incorrect;                      |
|              | way; text explains                           | of results is clear;                     | or errors in tex-                     | statistical errors in                    |
|              | results precisely and<br>without statistical | statistical approach largely correct and | tual discussion of                    | analysis; cursory investigation of       |
|              | errors; investigation                        | error-free                               | results; hypotheses<br>not thoroughly | hypotheses of                            |
|              | of hypothesis thor-                          | error-free                               | investigated                          | nypotneses                               |
|              | ough and detailed                            |  | Investigated                          |  |
| Discussion   | Perceptive and de-                           | Clear and thought-                       | Some useful discus-                   | Vague, incomplete,                       |
| and conclu-  | tailed discussion of                         | ful discussion of                        | sion of limitations                   | or unconvincing dis-                     |
| sions        | limitations of find-                         | limitations of find-                     | of findings, poten-                   | cussion of limita-                       |
|              | ings, potential ex-                          | ings, potential                          | tial explanations for                 | tions, implications,                     |
|              | planations for those                         | explanations for                         | those findings, sub-                  | and conclusions                          |
|              | findings, substantive                        | those findings,                          | stantive and theo-                    |  |
|              | and theoretical con-                         | substantive and the-                     | retical conclusions,                  |  |
|              | clusions, and possi-                         | oretical conclusions,                    | and possible future                   |  |
|              | ble future research                          | and possible future                      | research                              |  |
|              |  | research                                 |                                       |  |
| Writing      | Exceptionally well-                          | Very well-written—                       | Moderately well-                      | Unclear, awkward,                        |
| quality      | written—precise,                             | clear and articulate;                    | written; some typos;                  | or imprecise writing;                    |
|              | clear, and mistake-                          | few or no typos; not                     | wordy or vague                        | numerous typos; too                      |
|              | free; concise and                            | too long                                 |                                       | long and wordy or                        |
|              | elegant                                      |  |                                       | too short and vague                      |

# Critiques rubric

| Criteria           | A                        | В                       | C/D/F                      |
|--------------------|--------------------------|-------------------------|----------------------------|
| Thesis/argument    | Clear, strong argu-      | Discernible arguments   | Unclear or weak argu-      |
|                    | ments that go beyond     | but not strong/clear    | ments; mainly descrip-     |
|                    | description, address     | enough or too much de-  | tion or assertion; in-     |
|                    | important objections     | scription               | complete                   |
| Originality        | Creative new argu-       | Some analytical origi-  | Little originality; relies |
|                    | ments or approaches—     | nality in approach; op- | mainly on arguments        |
|                    | combines or applies      | portunities for greater | and evidence from          |
|                    | theories in new ways     | creativity              | class/sources              |
| Evidence           | Numerous, varied,        | Details and facts sup-  | Some details and facts     |
|                    | and relevant details     | port arguments, but     | to support arguments,      |
|                    | and facts provided in    | more needed or some     | but not enough and/or      |
|                    | support of arguments     | lacking relevance       | lack relevancy             |
| Use of course con- | Excellent understand-    | Conveys familiarity     | Basic course concepts      |
| cepts              | ing of course concepts   | with course concepts;   | not applied appropri-      |
|                    | and insightful applica-  | applies concepts to     | ately; incorrect or in-    |
|                    | tion to research topic   | topic appropriately     | complete                   |
| Organization       | Clear, logical organiza- | Organization not to-    | Organization is unclear    |
|                    | tion that develops ar-   | tally clear; some di-   | and/or paper strays        |
|                    | gument appropriately;    | gressions or lack of    | substantially from         |
|                    | does not stray off topic | needed structure        | agreed-upon topic          |
| Quality of expres- | Excellent grammar,       | Some errors, impreci-   | Awkward, imprecise,        |
| sion               | vocabulary, and word     | sion, or room for im-   | sloppy, or error-filled    |
|                    | choice                   | provement in writing    | writing                    |