

Teaching Critical Thinking about—While Training Students in—Quantitative Methods

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Abstract: In this paper I promote an integrative method to teaching research design and quantitative methods in political science. Basic topics in the philosophy of science and epistemology provide an important context in such courses, yet commonly used textbooks contain little on these topics, if anything. By adding a contextual element to these courses we offer students the chance to develop a personal epistemological orientation and give them the foundation necessary to critically consider their newly acquired skills.

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Context matters. It matters in teaching topical courses on politics as it does for classes on methods. Contextual knowledge is a necessary condition for critical thinking.

Take PS101 on U.S. Government. We want our students to do more than learn about the contours of ideologies, institutions, and processes, we also expect them to levy judgment—to ask not merely what is going on, but more importantly *how* is it going? That critical step presents a challenge for many native-born students who lack a frame of reference. As instructors, then, we are well advised to offer a comparative perspective (Wahlke 1991, 57). When we do, we perform one of the most valuable functions in the academy—as students across the country discover how surprisingly rare our system is, they gain the contextual leverage required to critically assess its value vis-à-vis others.

In this paper I develop the case for providing contextual knowledge in another area of the political science curriculum – research design and quantitative methods. Given the pluralistic landscape of the discipline, I suggest it is unwise to walk our students down a path toward analytical expertise without a map of the broader epistemological terrain.

I do this in four parts. First, I aim to establish a logical base for providing broader context when teaching courses on research methods and quantitative techniques in departments of Political Science (or Politics, or Government).¹ Second, I justify the use of textbooks as an indicator of course content and report a fairly comprehensive survey of texts designed for a broad range of methods classes. Third, I offer a simple typology of methods courses at the undergraduate and graduate level and identify the likely texts that best fit into each of the course types. Focusing on the most common type of undergraduate methods course, I then review the top four textbooks to examine the degree to which they provide an epistemological context. Finally, I close with a discussion of the implications for omitting these topics from our classes on quantitative methods. Among those are, at best, a tacit endorsement of one epistemological approach over another and students who leave us believing that was the intended lesson. At worst, we risk muting intellectual inquiry among our students and perpetuating a methodological bias in the discipline.

¹ To simplify, hereafter I use the term political science to refer to all such departments.

The Nomenclature

What do I mean by epistemological context? What is methodological pluralism? These terms and what they indicate are neither simple nor consistently applied throughout the literature. My purpose here is not to resolve those discrepancies. Instead, I aim to clarify what I mean by these terms, recognizing that my treatment is neither comprehensive nor the final word.

First, let me be clear that by *quantitative methods* I mean the full gamut of techniques that involve analyses of variables that take on numeric values. This ranges from basic descriptive statistics through estimates of relationships derived from the most sophisticated models. It includes statistical tests that lead to probabilistic claims, usually about an inaccessible universe of political activity from which a sample of observations is drawn.

I regard *qualitative methods* as analyses of variables whose states are characterized in words, not numbers. Note that I use that term to denote work conducted in the same epistemological vein as the quantitative methods just described. In other words, in a positivist approach to hypothesizing, observing, testing, and inferring. What do I mean by positivist approach? Throughout I will use the terms *positivist* and *positivism* as a simplified indicator of what is more accurately called post-positivism. It involves the realist's belief, ontologically, that our political subjects exist quite apart from us the researchers, and that our best shot at gaining knowledge of them is through the scientific method. That means that we strive to separate ourselves from the subject of interest, state testable hypotheses before making our observations, draw inferences from those observations, and build or refine theory as a result.

By considering qualitative methods as those conducted in that positivistic framework, we avoid conflating other work that is often term qualitative. This follows Yanow's (2003, 2005) distinction that places constructionism, relativism, and the like as orientations within a class called *interpretive methods* or *interpretivism*. That work differs fundamentally from the more ordinary science of positivists. Interpretivists begin from a separate ontological position. Reality is necessarily subjective and does not exist prior to and apart from the act of the observer. What an interpretivist can know, then—one's epistemological claims—are fundamentally different from a positivists' (Furlong and Marsh 2010; Hay 2011).² Because interpretive methods

² To elaborate slightly, Furlong and Marsh (2010) propose this distinction between ontologies, epistemologies, and methodologies: Two ontological orientations are foundationalism and anti-foundationalism. An anti-foundationalist

commonly use words in place of numbers to express variation in concepts, that work is often called qualitative. However, I suggest that Yanow's distinction is useful and I adopt it here. See Figure 1 for a schematic diagram of this.

As with all models, the diagram is imperfect. At the top of the figure I separate normative work from empirical even though a quantitative or qualitative empirical project can clearly be normative, too. My aim with this scheme is to make several very basic distinctions that will facilitate a discussion of my main concern—that it is a risky business to teach methods exclusively within the positivist, quantitative box. Note that I am using the term *empirical* simply to denote gaining knowledge through observation. That occurs most commonly in a positivist framework but may also happen through an interpretive method.

Multiple methodologies can also mean several things. In the analysis of textbooks below I use the phrase to note any mixture of methods. This could be two or more purely positivist approaches like, say, observational studies and experimental designs. In the way I use the term here, it does not necessarily indicate more than one epistemological orientation. When I speak of *multiple epistemologies*, I mean positivism and interpretivism in the simplest case.

As for *ontology*, *epistemology*, and *methodology*, I turn to one of the more carefully constructed and thorough discussions on these topics. Hay (2002) states the following: “ontology relates to the nature of the social and political world, epistemology to what we can know about it and methodology to how we might go about acquiring that knowledge” (63). I believe what I have described above comports with that account.

I will return to these questions in a later section when examining specific textbooks. My question is whether we serve our students and our discipline well when we teach within one analytic framework (the positivist quantitative) and fail to situate that approach among others.

ontology gives rise to an epistemology of interpretivism. Interpretivists employ methodologies that privilege qualitative data. By contrast, a foundationalist ontology gives rise to either a positivist or realist epistemology. Positivists use methodologies that privilege quantitative data. Realists' methodologies use both qualitative and quantitative data (186). This also fits with what I assume for this paper. As Yanow (2002, 2005) argues, a qualitative work from an interpretivist epistemology is a different project altogether than a qualitative study from an epistemological orientation of a realist. Also, Furlong and Marsh's positivist epistemological orientation that favors quantitative data is what I see as the prominent approach in teaching quantitative methods in political science.

Teaching Quantitative Methods

What distinguishes an excellent researcher from the rest? What does it mean to conduct empirical inquiry in a responsible manner? Does the transparent, public disclosure of our methods coupled with peer review assure honesty in our work? Excellence, responsibility, honesty – these are the traits of the political scientist we aspire to be. They are also the qualities we strive to instill in those we instruct. But we are busy. And with so much to share with our students, it is the interminable challenge of the instructor to choose which vital points to leave out, what essential topics and texts to ignore. So much knowledge to relay and so few weeks in the term.

Across the curriculum the scene repeats; courses on research design, the logic of inquiry, inferential statistics, and quantitative methods are no exception. How do we train students in quantitative methods and at the same time help them acquire the breadth of knowledge necessary to appreciate (a) the limits of such analyses and (b) the relative value of that approach when set alongside other methods of inquiry used in the discipline?

Why train students in quantitative method at all?

Training political science students in quantitative methods is an appropriate use of university and departmental resources (Adriaensen, Kerremans, Slootmaeckers 2015; Brandon, Brown, Lawrence, and Van Heerde 2006; Wahlke 1991). At least two benefits or noteworthy. First, requiring a basic understanding of the logic, structure, and tools in hypothesis testing with numeric data makes students better consumers. Indeed, it is hard to see how consumers of the published political science literature could critically consider its value without such training. Given the prominence of quantitative analyses in that published literature are we not obligated to arm our students with the basic skills necessary to conduct that critical assessment?

Second, training in basic or advanced quantitative methods provides students with a taste of what it is like to do that type of research. Potential practitioners and future university professors get a glimpse of the challenges and rewards of researching political questions in this framework. With that experience they may make a more informed choice about future career paths.

Why worry about context, alternative methods, and other approaches?

If students are trained thoroughly either in a basic set of quantitative methods or at an advanced level of expertise, then why bother with alternatives? This is the heart of the matter. I can point to at least three consequences of *not* providing context to these method skills, and take up each in turn below.

First, we may create a bias in our programs and departments. In programs where research design and quantitative empirical methods are required it is possible that *the fact that it is a required course* matters. Students may infer that these topics hold a privileged status in the discipline. And maybe they do. Still, this approach is one of a variety of approaches political scientists pursue in understanding their objects of inquiry. When we fail to give other approaches equal time or emphasis, we risk creating an impression that the quantitative is preferable to all others. Now, if a program or an instructor believes that other methods of inquiry are subordinate or inferior to quantitative, positivistic inquiry, then my concern is misplaced. If not, then it is incumbent on both the program and its various instructors to counterbalance this tacit endorsement.

Second, we may amplify a preexisting bias. Many of our students enter with a cultural preference toward the positivistic quantitative project—i.e., the “scientific.” In Western society this position germinates early on and grows stronger over time; the environment is rich with sustenance. I recognize that it is no coincidence that empirical, positivistic analyses are well represented in the discipline of political science, and that the label itself establishes priorities when considered next to departments of politics or government. Adopting the term, *science*, supports the notion that, among the various approaches to inquiry in the discipline, those that resemble normal science are better, that they are a truer reflection of what the discipline is and what it stands for.

It should be our task, as facilitators of higher education, to encourage a critical assessment of that stance. In a discipline that straddles epistemological orientations we must actively supply the intellectual ballast to counter the waves of popularity pushing the cultural bias for positivistic quantitative work. Otherwise, without that grounding, we can expect our students to walk out the door with uncritical indoctrination. As academics our fundamental

purpose is to question. The degree to which we do not promote that habit in our students is the extent to which we abrogate our responsibility to them, the university, and society.

This connects to a third consequence: we are perpetuating an intellectual deficit in the discipline. In addition to students who pursue careers in applied fields of public service, law, administration, or advocacy, we are preparing among a select few the next generation of political scientists. Here, my thesis become personal—to me and, in all likelihood, to you, the reader. It is possible that courses on research design and quantitative methods lack the context I promote because we instructors are ill equipped to provide it. We are, after all, a product of the same system of training. If, for that reason and others, we do not contextualize the skills and expert knowledge required to conduct quantitative analyses then we can expect the next generation of scholars to fall short on these same matters.

Next, I look at books on these topics to determine the degree to which the authors supply a broader epistemological context. Then I close with a discussion of the findings.

Textbooks on Research Design and Quantitative Methods

In this section I examine texts. First, I offer a straightforward coding of what the texts contain. Second, I set several books aside because they are typically supplemental material. Third, I consider the remaining books in order to place them in four types of classes, based on the match between the book and the course content. Finally, I identify and analyze a subset that undergraduate political science students are most likely to encounter along either a required or elective track of quantitative methods training.³

Published texts are reasonable indicators of the topics covered in political science courses on research design and methods of inquiry. Surely instructors supplement that material with original lecture content, journal articles, and book chapters. But the textbooks contains the core of the course's content. This is probably more true in methods courses than in other parts of the curriculum, given the common set of goals in either introductory or advanced courses on such topics. Those include the basic logic of inquiry, measurement, hypothesis construction, descriptive analyses, and on to the examination and tests of explanatory or causal relationships.

³ This paper is part of a larger project in which I pose similar questions for training at the graduate level.

I reviewed forty-four books. Some graduate-level courses on specific quantitative methods employ texts that I have not considered below, but the vast majority of political scientists teaching courses at the undergraduate level in all likelihood use one or more of the books I list here.

Forty-four related books

Turner and Thies (2009) report twenty texts that were most commonly used among departments they surveyed. Lawrence (2008) offers an analysis of a subset of those, along with several others. I include the most commonly mentioned texts from those two reports and other books based on (a) my personal experience and exposure, (b) colleagues' input, (c) Amazon's non-sponsored related books—from the “customers who bought this item also bought” list. This led to the 44 texts listed in Table 1.

From those forty-four, I set aside fourteen books that, while important contributions and excellent supplemental reading, are not designed as texts *per se* for these types of courses. For example, I do not examine the two top-selling books among the forty-four: Kuhn's *The Structure of Scientific Revolutions* (1962, 2012) and Wheelan's *Naked Statistics: Stripping the Dread from the Data* (2014). The former is essential reading in graduate programs that cover the philosophy of science, whether social science or not. The latter is a spot-on companion to introductory texts on quantitative methods in the social sciences, but is purposefully casual rather than comprehensive.

In addition, I excluded the following 12 books based on the various factors noted below and listed in descending rank of sales:

- Putnam's (2000) *Bowling Alone: The Collapse and Revival of American Community*, a single-thesis project, a widely read and useful example but not a textbook.
- Leedy and Ormrod's (2015) *Practical Research: Planning and Design 11th Edition*, a text that covers general research design for all, well beyond social sciences. This list would become prohibitively long if my criteria were relaxed to include books like these.
- Campbell and Stanley's (1961) *Experimental and Quasi-Experimental Designs for Research*, an 84-page monograph on those topics alone.
- Gerring's (2012) *Social Science Methodology: A Unified Framework 2nd Edition*, a broad and deep discussion of methods across the social sciences.

- Agresti's (2018) *Statistical Methods for the Social Sciences 5th Edition*, a statistics text with no real content on research design. Again, the list would become unwieldy if I included texts in this format.
- Frankfort-Nachmias, Nachmias, and Dewaard's (2014) *Research Methods in the Social Sciences 8th Edition*, another text focusing on statistics for all social sciences.
- Best's (2012) *Damn Lies and Statistics: Untangling Numbers from the Media, Politicians, and Activists*, a useful supplement that covers the basic use of numbers in an accessible style.
- Lewis-Beck and Lewis-Beck's (2015), *Applied Regression: An Introduction 2nd Edition*, one of the 177 Sage monographs on specific related topics.
- Vogt and Johnson's (2016) *The SAGE Dictionary of Statistics & Methodology: A Nontechnical Guide for the Social Sciences 5th Edition*, an excellent and relevant dictionary but not a text.
- Asher's (2016) *Polling and the Public: What Every Citizen Should Know*, a book that is specific to polling and survey methods.
- Hay's (2002), *Political Analysis: A Critical Introduction*, an excellent treatment of topics at the core of my concern here, but not a text on methods.
- Theodoulou and O'Brien's (2000) *Methods for Political Inquiry: The Discipline, Philosophy and Analysis of Politics*, an edited volume of essays at a basic level across methodological and epistemological orientations.

Thirty textbooks

The thirty remaining texts are listed in Table 2. I identified the intended audience for each, using either the authors' explicit claims or my best judgment based on personal experience and a review of the content of the book. I considered the following factors:

Level: Material at a beginners' level appropriate for undergraduate introductory courses or at a more advanced level common to graduate-level instruction

Area or discipline: Intended for students of politics, or social sciences more broadly

Logic of inquiry and research design: Includes the logic of empirical inquiry and options for designs

Multiple methods: More than large-N analyses and inferential statistics – includes other options, like experimental design, case studies, content analysis, etc.

Multiple epistemological orientations: In addition to a qualitative/quantitative distinction, covers more than a positivist approach – e.g., provides interpretivism as another method of inquiry

Statistical concepts introduced: Descriptive, bivariate, and sometime multivariate frameworks of analysis covered, sometimes accompanied by the use of test statistics

Inferential statistics covered in depth: Derivations of various summary statistics, test statistics, and measures of association covered

Tables for Z , t , F , χ^2 : Are some or all of these tables included for reference

OLS regression: Includes at least an introduction to the technique, including multiple regression

Advanced techniques: Covers topics typically not offered until the graduate level, like regression diagnostics, advanced maximum-likelihood estimation, hierarchical models, structural equation models, etc.

Some of these distinctions are easy calls. Take the level of the intended audience, for example: it is unlikely that an undergraduate curriculum includes training in multi-level modeling, as developed in Gellman and Hill's (2007) *Data Analysis Using Regression and Multilevel/Hierarchical Models*. Meanwhile, most graduate programs expect incoming students to be beyond the need for introductory-level content found in Shively's (2012) *The Craft of Political Research*, Donovan and Hoover's (2014) *The Elements of Social Scientific Thinking*, or Babbie's (2016) *The Basics of Social Research*.

Other books are more difficult to classify as either undergraduate or graduate material. King, Keohane, and Verba's (1994) *Designing Social Inquiry: Scientific Inference in Qualitative Research* is probably assigned at both levels. Kellstedt and Whitten's (2013) *The Fundamentals of Political Science Research 2nd Edition* introduces basic concepts but also more advanced topics like regression diagnostics and time series analysis. Gschwend and Schimmelfennig's (2007) edited volume, *Research Design in Political Science: How to Practice What They Preach* offers practical guidance that the authors state is intended for PhD students but may also benefit advanced undergraduates. I have therefore classified these three texts as intended for use in both.

Of course, it is easy sometimes, and other times not, to place the texts into the other classifications. What is the difference between a simple introduction and a rigorous training in

inferential statistics, for example? I include two other indicators so that readers may address that question for themselves – whether tables for values of test statistics (Z , t , etc.) are included, and whether the text works up through multiple OLS regression.

Types of Methods Courses and Matching Texts

It is common for programs in political science to make the study of research design and methods mandatory in the major. Thies and Hogan surveyed departments that offer undergraduate political science courses and found that 64% of them require their majors to study “research design and/or research methods” (2005, 295-297; Turner and Thies 2009). A much lower estimate of 28% was found in a 2010 analysis of 195 APSA-member institutions that award political science degrees (Parker 2010). The methods differed in the two studies; the former was a survey and the latter was an examination of on-line materials within the various departments and programs. Still, the discrepancy is very large. A more recent survey, this time of APSA-member U.S. institutions, showed that about 69% require methods coursework (Daigle, Hofeman, and Neulen 2018).⁴ It is unclear what to make of the widely varying estimates. I will simply suggest that somewhere between around 30% and 70% of the APSA-member institutions that offer a degree in political science require some methods training.

If many undergraduate political science majors are required to take research design and methods, then the question of how those topics are conveyed deserves scrutiny. And it has received it, with an entire issue of the *Journal of Political Science Education* devoted to the topic in 2015.

Below I consider areas of emphasis that occur in both undergraduate and graduate programs. These are taught in a sequence of two or more courses, or combined into one required course. For each of the four areas I identify likely texts, by author(s). An asterisk indicates one of the three texts that is probably as appropriate for both undergraduate and graduate coursework.

Please note that I focus in this paper on the undergraduate curriculum. The list of texts for both areas of graduate coursework is incomplete. I provide it here to illustrate a framework for a more thorough look at graduate training that I plan to conduct in the future.

⁴ Of the 81 institutions surveyed, 71 (88%) offer courses on research methods and 56 (69.1%) *require* such courses for the major (Daigle et al. 2018, 2 – 4).

Type 1: Undergraduate research design, scope and methods

First steps in understanding how research is conducted.
Multiple options for research design; may cover multiple epistemological approaches.
Qualitative and quantitative methods may be taught.
Quantitative methods are covered, but not in a rigorous manner.
Introduction to basic statistical concepts.
May be taught with no accompanying computer lab.

14 texts suited to the topics (in order of sales ranking, see Table 2 for details):

Babbie (both)
King, Keohane, and Verba*
Shively
Neuman
Malici and Smith
McNabb
Donovan and Hoover
Le Roy⁵
Barakso, Sabet, and Schaffner
Halperin and Heath
Pierce
Gschwend and Schimmelfennig*
Clark

Type 2: Undergraduate research methods, quantitative analysis

Brief treatment of how research is conducted.
May mention multiple epistemological approaches and/or qualitative methods.
Typically focuses on observational studies, large-N analyses, quantitative methods.
Introduction to inferential statistics, probability-based hypothesis testing.
Multivariate analyses using cross-tabs and usually OLS regression.
May be taught with an accompanying computer lab.

7 texts suited to the topics (in order of sales ranking, see Table 3):

Pollock
Kellstedt and Whitten*
Johnson, Reynolds, and Mycoff
Brians, Willnat, Manheim, and Rich
Galderisi

⁵ The Le Roy (2013) text, *Research Methods in Political Science: An Introduction Using MicroCase*, is difficult to place. Unlike the others in this group it *would* likely involve a computer lab. The text contains little on the logic of inquiry or various methods but instead runs through topics in analyzing quantitative data. It is more like a workbook and covers these items on a relatively basic level. It does not belong in the more rigorous courses on data analysis and inferential statistics, yet it does not cover scope in methods and is admittedly a bit out of place on this list.

Carlson and Hyde
Jones and Olson

Type 3: Graduate research design, philosophy of science, scope and methods

Introduction to critical treatment of research design.
Logic of inquiry, multiple methodological approaches.
Multiple epistemological approaches.
Basic philosophy of science.
Focus on a critical consideration of all topics, rather than simple comprehension.

4 texts suited to the topics (in order of sales ranking, see Table 2):

King, Keohane, and Verba*
Brady and Collier
Lave and March
Gschwend and Schimmelfennig*
(plus others: Popper, Kuhn, Lakatos, Feyerabend, to name a few)

Type 4: Graduate quantitative methods coursework

Detailed and structured training in quantitative methods.
Basic econometrics, least squares estimation, regression diagnostics.
Maximum likelihood estimation, specification, and diagnostics.
Frequentist versus Bayesian approaches.
Focused training in: measurement, scaling, factor analysis, structural equation models;
experimental design; survey design; time series analysis; multi-level modeling;
simulation, Markov-chain-Monte-Carlo methods; computational modeling.

8 texts suited to the topics (in order of sales ranking, see Table 2):

Gelman and Hill
Long and Freese
Kennedy
Greene
Kellstedt and Whitten*
Gujarati and Porter
King
Fox
(plus others)

Common practices in the undergraduate methods curriculum

Recall that possibly half (around 20% to 70%) of political science departments require some methods coursework for the BA (Daigle et al. 2018; Thies and Hogan 2005; Parker 2010). Let us look more closely at the two types of undergraduate courses outlined above to see how well they fit with the Daigle et al.'s (2018) recent survey of U.S. institutions. What is most common—the Type 1 course on scope and methods, the Type 2 course on research design and data analysis, or a combination of the two?

Of the programs requiring methods training, 80% do it in one course and 77% do it without an accompanying lab section (Daigle et al. 2018, 4-10). That might lead us to think that many are teaching a Type 1 course on qualitative and quantitative methods, with a rather basic treatment of data. Such a course would fit into the traditional classroom setting and the one-course constraint. But that does not appear to be the case: Nearly two-thirds (66.2%) of the same type of programs require students to work through bivariate regression analysis, and about 76% use at least one statistical software package (11). These topics and tools are found in the Type 2 course laid out above. It appears, then, that many programs (a) teach the methods requirement in classrooms with no lab component, (b) cover material through OLS regression, (c) include practical exercises using statistical software, and (d) do all of that in one course rather than a sequence of courses.

With this profile of common practices in hand, let us return to the list of texts for undergraduate training. Which books are more likely to be used? The texts suited to the Type 1 course simply do not contain material necessary to accommodate this common profile. It is possible that several of these books would serve as a valuable complement to those providing a more rigorous treatment of hypothesis testing and inferential statistics, but on their own they are inadequate. Note that this is by design; these authors do not expect their texts to meet a course objective of applying and understanding regression analysis. Therefore, the texts listed under the Type 2 course are more likely to be assigned in departments requiring undergraduates to study research methods.

To draw on further evidence, consider that a survey of instructors of “scope and methods” courses showed that two texts were more popular than others were by a wide margin – Pollock’s *The Essentials of Political Analysis* and Johnson, Reynolds, and Mycoff’s *Political*

Science Research Methods (Turner and Thies 2009, 369).⁶ Sixteen percent of those surveyed reported using Pollock's text(s) and 16% said they used the Johnson et al. book. The next most commonly mentioned text was used by only 6.5% of the instructors.⁷

In the recent survey by Daigle and colleagues (2018), three texts stand out: the two just mentioned and Kellstedt and Whitten's *Fundamentals of Political Science Research*. About 22% of the U.S. institutions surveyed said they used Pollock's *Essentials* text, while 17% use the Kellstedt and Whitten book, and 14% require the Johnson, Reynolds, and Mycoff text (8). The next most often cited book was mentioned by less than 5% of the institutions.⁸

To be clear, no single text dominates among instructors' choices. Both surveys find wide variation, with many texts mentioned by only one respondent. Still, ten years ago about one-third of the classes on scope and methods used either Johnson et al.'s or Pollock's text (Turner and Thies 2009). Today over half (53%) of these courses use one of those books or Kellstedt and Whitten's (Daigle et al. 2018). This matches what I find in Amazon's sales figures. Among the seven texts suited for these courses, those three are the best sellers: (1) Pollock, (2) Kellstedt and Whitten, and (3) Johnson Reynolds, and Mycoff (Table 3).

Next, I look more closely at each of these along with the next-ranked text suited to this common course profile: Brians, Willnat, Manheim, and Rich's (2010) *Empirical Political Analysis: Research Methods in Political Science*.

Do Commonly Used Texts Include Epistemological Context?

I offer a brief, focused review of each of the four texts to determine whether and to what extent the authors provide some broader context for their topics. I am interested in any mention of methods of inquiry beyond the positivist or post-positives approach, and especially characterizations of where the main substance of these books fits in the discipline. To conduct these reviews I read the relevant sections and paid particular attention to the indices, glossaries,

⁶ The figure for Pollock includes instructors who used one or more of his main text, "*Essentials*," an SPSS workbook, and a Stata workbook.

⁷ That was an earlier edition of Le Roy's *Research Methods in Political Science: An Introduction Using MicroCase*.

⁸ That was Babbie's (2015) popular *The Practice of Social Research*. I place it in the Type 1 group due to its cursory treatment of quantitative techniques. For a sense of how cursory, consider that Chapter 16 on "Statistical Analyses" covers the following topics in a mere 32 pages: measures of association, regression analysis, statistical inference, Chi-square and *t* tests, time series, factor analysis, ANOVA, logistic regression, and ARC-GIS mapping.

and tables of contents, searching for terms like science, ontology, epistemology, methodology, interpretivism, constructionism, induction, deduction, etc.

The Essentials of Political Analysis 5th Edition, (Pollock 2016)

The author makes no mention of any of the topics or issues I examine here. In fact, he chooses not to situate the project at all. The book's first chapter is on measurement, and so any contextual information is found in the five-page introduction. There he notes a distinction between facts and values and in a very brief discussion characterizes "the scientific approach" with the advice to "*Remain open, but remain skeptical*" (2016, xxi).

In my judgment this is not an error by omission but instead a considered choice. One advantage to Pollock's approach is the flexibility it allows instructors: An instructor will often disagree with the manner in which an author portrays the broader ontological and epistemological approaches in the discipline. By excluding the topic altogether, Pollock lets us begin afresh, rather than telling students that the author has it wrong on this count or that, and then giving them our preferred version.

Alternatively, it is possible that instructors using this text begin the first week with Pollock's Chapter 1 and fail to mention the important contextual items I have discussed.

The Fundamentals of Political Science Research 2nd Edition (Kellstedt and Whitten 2013)

This text, like Pollock's, sets aside any mention of the pluralistic methodologies in the discipline. Curiously, they begin the second section of Chapter 1 with the following sentence: "The question of 'how do we know what we know' is, at its heart, a philosophical question" (Kellstedt and Whitten 2013, 3). A reader might expect some elaboration on that statement. Instead, they use it to introduce a defining aspect of their "scientific approach" – the willingness of a scientist to consider new and discrepant evidence and to use such information over time to build a better understanding (3). The question they stated has a rich and important response and it would seem a good use of a page or two to situate their approach to knowing. However, they avoid that topic. Just as with the Pollock text, I expect this is a conscious and considered choice and not a mistake.

In their depiction of the scientific method, called “The road to scientific knowledge” they lay out steps in the process: causal theory, hypothesis, empirical test, evaluation of hypothesis, evaluation of causal theory, leading to scientific knowledge (Figure 1.1, 3). Kellstedt and Whitten emphasize deduction, although they never use the term (nor induction). They are also silent in the balance of the text on any contextual information regarding other sources of knowledge or methods employed in the discipline.

Political Science Research Methods 8th Edition (Johnson, Reynolds, and Mycoff 2016)

Of these three prominent texts, the Johnson et al. book is the only one that provides students with a broader context. Notably, it is about twice the size of the other two (632 pages versus 280 for Pollock and 316 for Kellstedt and Whitten). Early on, the authors situate the positivistic orientation and expose beginning students to the plurality of analytical approaches in the discipline. Their treatment is not comprehensive, nor need it be.

They cover some of the context I deem necessary in their Chapter 2, “The Empirical Approach to Political Science” (Johnson et al. 2016) The glossary also reflects some of the pluralism in the discipline. It contains terms like, interpretation, critical theory, constructionism, and participant observation. In the brief, eight-page glossary, these contextual matters are well represented.

Johnson, Reynolds and Mycoff offer two competing approaches to their *empiricism* (what I consider quantitative positivism). One insists that because our subjects are social we must examine experiences through their perspective. This they call *interpretation*. A second rejects the ontological assumption that a reality exists separate from the researcher’s act of observing it. This they term *constructionism* and I find that accurate. However, they then group critical theory and feminist theory with that orientation. In their Table 2.1 they summarize by labeling “methodological perspectives” as either empirical or non-empirical (2016, 70). A key quote from this Chapter is:

The constructionist viewpoint, which comes in innumerable varieties, challenges the idea of an objective epistemology, or theory of knowledge. Such ideas, however, are of a deeply methodological nature and raise deep philosophical issues that go well beyond the task of describing the empirical methods used in the discipline (68).

The authors then pivot and point out the value of the positivist approach (“empiricism”), its prominence, and how it has shaped the discipline over the long term (Johnson et al. 2016, 68). I find the effect troubling. I applaud the authors for raising these issues but it is too bad that beginning students who read the lines above may shy away from such a “deep philosophical issue.” This is my central point: we need, at this early stage of an undergraduate’s intellectual growth, to prepare the soil, carefully sew the seed, and nurture the emerging ideas and questions with more, not less, exposure to the sunlight of methodological pluralism. Yes, the topics are dense; and, yes, it takes precious time from other pressing matters. But is there a more basic, integral, fundamental question to promote in our students than this one?

That said, I want to be clear: My complaints about this chapter minor. What is major is the inclusion of these topics by the authors. While I am frustrated with their appropriation of the term *empiricism*, and with the dismissive quote above, I think they offer a valuable introduction to students who will spend the balance of the course on quantitative methods.

Empirical Political Analysis: Research Methods in Political Science 8th Edition (Brians, Willnat, Manhiem, and Rich 2010).

This text is heavy on research design and includes some qualitative and quantitative methods. The authors work within a positivist framework with no mention of interpretivism, constructionism, or any other alternative orientation. The scope of the book is broader than the others, with three chapters on qualitative methods, eleven on quantitative methods, and nine on topics like measurement, sampling, and how to write a research paper. It contains 446 pages.

Brians and colleagues introduce students to the notion of scientific knowledge at a very basic level. They distinguish between normative and empirical work, and then explain that the empirical designs may be either quantitative or qualitative. In no place do they mention epistemology, positivism, or the like. Instead, at the onset they recognize that scientific inquiry is one of a variety of ways of knowing and then note that it is often “the *most effective*” (italics in original text, 2011, 3). They do this in the first few paragraphs of the text and do not really look back.

In the section on qualitative methods, the authors note the necessity to appreciate the social, cultural, and political context within which our subjects operate. However, throughout they toe the line of a positivist approach with no mention of qualitative work conducted in the interpretivist framework.

Summary of the four texts

To summarize, all four of these popular books provide a relatively thorough treatment of quantitative methods, inferential statistics, and large-N techniques working up through multiple OLS regression. Three of the four, all but Brians et al., also include MLE estimation techniques. To be clear, none of these is a statistics text. Instead of the derivations and probability theory underlying these methods, the authors in all four put their focus more on the application and practice of the techniques.

Two texts include multiple methods: those by Johnson et al. and Brians at al. The latter offers a three-chapter section on qualitative methods, all in positivist framework. Those include direct observation, focus groups, and in-depth interviewing. Johnson and colleagues, meanwhile, are the only ones to include both multiple methods *and* multiple epistemological orientations with a chapter devoted to qualitative interpretive methods like ethnographic analyses and participant observation.

Although Pollock, and Kellstedt and Whitten introduce students to experimental designs, they do that very briefly in one section of one chapter, more as a point of contrast than real training. Their focus throughout is on quantitative analyses of observational studies. They do not include qualitative techniques of any flavor.

Kellstedt and Whitten's book provides the most advanced treatment of quantitative techniques, although it remains an introductory text. Pollock's is the most concise treatment of quantitative methods, and covers marginally more than do Johnson et al. and Brians et al. The Johnson, Reynolds, and Mycoff text gives the most comprehensive treatment of all, and at the same time provides methodological and epistemological breadth that better reflects the work in the discipline.

Implications of Omitting Epistemology and Suggestions for Inclusion

If the material in textbooks is an indicator of course content, then in three of the four most commonly used texts we see no mention of epistemological context. Importantly, I make no claim as to what extent instructors provide that context with supplemental material. My personal experience in teaching these courses gives me an appreciation for how challenging it can be to fit the mere basics into a single term. This leads me to suspect that not much time is spent on additional topics. It seems possible, and even likely, then, that many students are introduced and trained in research design and quantitative methods with little to no exposure to alternative approaches.

As I have noted in earlier sections, when that occurs it presents a risk. First, students will often lack the contextual information necessary to critically assess the function and value of that quantitative approach. Second, they may see the requirement to study these techniques as a tacit endorsement of their relative value or even superiority to other methods. Those students may complete their degrees without questioning us or our methods, walking away instead with a newly acquired or reinforced bias. Context matters.

Here is what I believe could and should occur, a best-case scenario: Students experience political science as methodologically pluralistic, recognizing that our varied approaches make the work stronger. They read from a variety of perspectives in the discipline. Normative theory, deductive empirical work (e.g., rationalism), inductive empirical work (e.g., behavioralism), and interpretivist empirical work (e.g., constructionism). These students gain an understanding of what distinguishes each approach, and develop their own ontological and epistemological beliefs. That is, they develop a personal philosophy of science within which they can place the prominent positivist empirical work on politics. At the same time they obtain the capacity to critically consider science-based knowledge more broadly.

And here is what I see in the worst-case scenario: Political science is silent or, when vocal, inconsistent in its claims regarding what and how we can learn about the political world. In other words, we not only hold differing beliefs about the knowable and how to know it, we talk about these things so rarely that we lack even a common set of terms and language. Students pass through our programs unaware. In the curriculum, little to no connection is made among the various approaches and instead the quantitative positivist methods receive special attention.

Scholars talk among like-minded colleagues and past those who employ other assumptions and methods. Students obtain a basic working knowledge of quantitative methods yet remain largely ignorant of the fundamental bases on which political science is conducted. They graduate believing that (a) *we* think the “scientific” approach is best, (b) our lesson for them is that the “scientific” approach is best, or (c) both of those.

Positivistic, quantitative research on politics is valuable. It is also probably the most prominent approach employed in the discipline. Therefore, it is right that we desire and require our students to learn the basic methods. We must do that and in addition take the extra step to provide an epistemological context for those new skills.

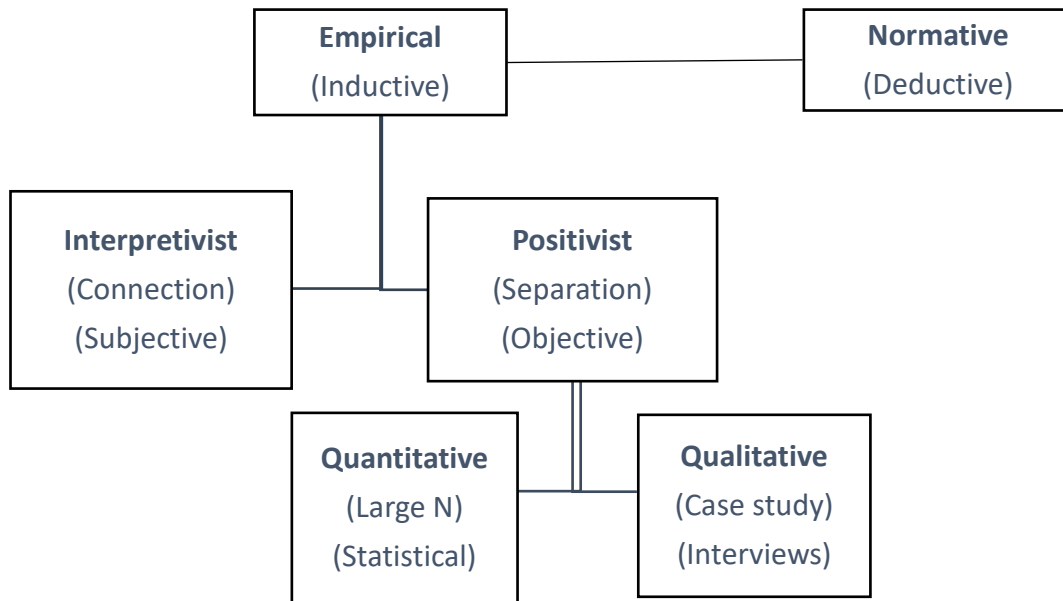


Figure 1. Epistemological Orientations

Table 1. Forty-four Books Related to Teaching Research Design and Quantitative Methods
(Ranked by sales)

Date	Title	Author(1st)	Publisher		Pages	Rank	Not text	Level	Area	Logic design	Mult Meth	Mult Epist	Stats 1	Stats 2	Z,t	OLS	Adv
2012	The Structure of Scientific Revolutions	Kuhn, Thomas S.	University of Chicago	Chicago, IL	264	6569	X	UG/GR	SCI	X							
2014	Naked Statistics: Stripping the Dread from the Data	Wheelan, Charles	W. W. Norton & Co.	New York, NY	304	6921	X	UG	SOCSCI	X			X				
2000	Bowling Alone: The Collapse and Revival of American Community	Putnam, Robert D.	Simon & Schuster	New York, NY	544	12975	X	UG/GR	POLSCI	X			X				
2015	Practical Research: Planning and Design 11th Edition	Leedy, Paul D.	Pearson	Boston, MA	408	15097	X	UG	SOCSCI	X	X	X	X				
2016	The Basics of Social Research 7th Edition	Babbie, Earl R.	Wadsworth/Cengage	Boston, MA	530	38548		UG	SOCSCI	X	X		X		X		
2007	Data Analysis Using Regression and Multilevel/Hierarchical Models	Gelman, Andrew	Cambridge University Press	New York, NY	648	35061		GR	SOCSCI	X						X	X
2014	Regression Models for Categorical Dependent Variables Using Stata	Long, J. Scott	Stata Press	College Station, TX	589	223123		GR	SOCSCI	X						X	X
2015	The Practice of Social Research 14th Edition	Babbie, Earl R.	Wadsworth/Cengage	Boston, MA	592	108359		UG	SOCSCI	X	X		X		X		
1994	Designing Social Inquiry: Scientific Inference in Qualitative Research	King, Gary	Princeton University Press	Princeton, NJ	300	80468		UG/GR	SOCSCI	X				X			X
2008	A Guide to Econometrics 6th Edition	Kennedy, Peter	Wiley-Blackwell	Hoboken, NJ	598	149735		GR	SOCSCI	X				X		X	X
2010	Rethinking Social Inquiry: Diverse Tools, Shared Standards 2nd Edition (edited volume)	Brady, Henry E.	Rowan & Littlefield	Lanham, MD	428	201384		GR	SOCSCI	X							
1961	Experimental and Quasi-Experimental Designs for Research	Campbell, Donald T.	Houghton Mifflin	Boston, MA	84	343135	X	GR	SOCSCI	X							
1993	An Introduction to Models in the Social Sciences	Lave, Charles A.	University Press of America	Lanham, MD	432	520988		GR	SOCSCI	X							
2016	The Essentials of Political Analysis 5th Edition	Pollock, Philip H. III	CQ Press	Thousand Oaks, CA	280	203424		UG	POLSCI	X				X	X	X	
2012	Social Science Methodology: A Unified Framework 2nd Edition	Gerring, John	Cambridge University Press	New York, NY	518	281506	X	GR	SOCSCI	X		X					
2013	The Fundamentals of Political Science Research 2nd Edition	Kellstedt, Paul M.	Cambridge University Press	New York, NY	316	213426		UG/GR	POLSCI	X				X	X	X	X
2018	Statistical Methods for the Social Sciences 5th Edition	Agresti, Alan	Pearson	Boston, MA	608	527266	X	UG	SOCSCI					X	X		
2014	Research Methods in the Social Sciences 8th Edition	Frankfort-Nachmias, Chava	Worth Publishers	New York, NY	485	440736	X	UG	SOCSCI					X	X	X	
2016	Political Science Research Methods 8th Edition	Johnson, Janet Buttolph	CQ Press	Thousand Oaks, CA	632	323016		UG	POLSCI	X	X	X		X	X	X	

Date	Title	Author(1st)	Publisher		Pages	Rank	Not text	Level	Area	Logic design	Mult Meth	Mult Epist	Stats 1	Stats 2	Z,t	OLS	Adv
2012	Damn Lies and Statistics: Untangling Numbers from the Media, Politicians, and Activists	Best, Joel	University of California Press	Berkeley, CA	224	321685	X	UG	SOCSCI	X			X				
2018	Econometric Analysis, 8th Edition	Greene, William H.	Pearson	New York, NY	1168	346005		GR	SCI						X	X	X
2012	The Craft of Political Research 10th Edition (ranking is 9th ed.)	Shively, W. Phillips	Routledge	New York, NY	202	616398		UG	POLSCI	X			X				
2008	Basic Econometrics 5th Edition	Gujarati, Damodar N.	McGraw-Hill/Irwin	New York, NY	944	340414		GR	SCI						X	X	X
2011	Basics of Social Research: Qualitative and Quantitative Approaches 3rd Edition	Neuman, W. Lawrence	Pearson Longman	Boston, MA	432	370594		UG	SOCSCI	X	X	X	X				
2010	Empirical Political Analysis: Research Methods in Political Science 8th Edition	Brians, Craig Leonard	Routledge	New York, NY	446	470245		UG	POLSCI	X	X			X	X	X	
1998	Unifying Political Methodology: The Likelihood Theory of Statistical Inference	King, Gary	University of Michigan Press	Ann Arbor, MI	288	639289		GR	POLSCI	X						X	X
2016	Applied Regression Analysis and Generalized Linear Models	Fox, John	Sage	Thousand Oaks, CA	816	341590		GR	SOCSCI							X	X
2015	Applied Regression: An Introduction 2nd Edition	Lewis-Beck, Paul	Sage	Thousand Oaks, CA	120	365036	X	UG/GR	SOCSCI							X	X
2016	The SAGE Dictionary of Statistics & Methodology: A Nontechnical Guide for the Social Sciences 5th Edition	Vogt, W. Paul	Sage	Thousand Oaks, CA	520	412705	X	UG/GR	SOCSCI								
2012	Political Science Research in Practice (edited volume)	Malici, Akan	Routledge	New York, NY	232	614176		UG	POLSCI	X	X		X				
2015	Research Methods for Political Science: Quantitative and Qualitative Methods 2nd Edition	McNabb, David E.	Routledge	New York, NY	448	1298534		UG	POLSCI	X	X	X	X				
2016	Polling and the Public: What Every Citizen Should Know	Asher, Herb	CQ Press	Thousand Oaks, CA	348	746968	X	UG	SOCSCI	X			X				
2014	The Elements of Social Scientific Thinking 11th Edition	Donovan, Todd	Wadsworth/Cengage	Boston, MA	208	695583		UG	SOCSCI	X			X				
2013	Research Methods in Political Science: An Introduction Using MicroCase 8th Edition	Le Roy, Michael K.	Wadsworth/Cengage	Boston, MA	320	660344		UG	POLSCI				X				
2014	Understanding Political Science Research Methods: The Challenge of Inference	Barakso, Maryann	Routledge	New York, NY	250	805373		UG	POLSCI	X	X		X				
2015	Understanding Political Science Statistics: Observations and Expectations in Political Analysis	Galderisi, Peter	Routledge	New York, NY	364	1114836		UG	POLSCI	X				X	X	X	
2003	Doing Empirical Political Science Research	Carlson, James M.	Houghton Mifflin	Boston, MA	512	1314839		UG	POLSCI	X	X			X	X	X	
2017	Political Research Methods & Practical Skills 2nd Edition	Halperin, Sandra	Oxford University Press	Oxford, UK	488	1316250		UG	POLSCI	X	X	X	X				
2008	Research Methods in Politics	Pierce, Roger	Sage	Thousand Oaks, CA	352	1867661		UG	POLSCI	X	X		X				
2002	Political Analysis: A Critical Introduction	Hay, Colin	Palgrave	New York, NY	314	2270349	X	GR	POLSCI	X	X	X					

Date	Title	Author(1st)	Publisher		Pages	Rank	Not text	Level	Area	Logic design	Mult Meth	Mult Epist	Stats1	Stats2	Z,t	OLS	Adv
2004	Researching the Polity: A Handbook of Scope and Methods	Jones, Laurence	Atomic Dog	Mason, OH	372	3600890		UG	POLSCI	X			X	X	X		
1998	Methods for Political Inquiry: The Discipline, Philosophy and Analysis of Politics (edited volume)	Theodoulou, Stella Z.	Pearson	London, UK	222	3736714	X	UG	POLSCI	X	X	X					
2007	Research Design in Political Science: How to Practice What They Preach (edited volume)	Gschwend, Thomas	Palgrave	New York, NY	243	3765478		UG/GR	POLSCI	X	X						X
2014	Political Science Research Methods: Exploring America at a Crossroads	Clark, Cal	World Sci. Publishing	Singapore	364	6444209		UG	POLSCI	X			X				

See text of the paper for details on these classifications

Only first authors are listed to save space. Please see the References for other authors

“Rank” is Amazon’s ranking within “Books” and averaged across three dates (March 3rd, 10th, and 21st of 2018)

“Not Text” indicates the book is not a typical textbook format

UG = undergraduate level; GR = graduate level

POLSCI = title and content indicate it is specific to political science; SOCSCI = social science; SCI = science

“Logic/design”: the book covers some aspects of the logic of empirical inquiry and basic research design

“Mult. Meth.”: contains multiple methods, e.g., qualitative case study and quantitative data analysis

“Mult. Epist.”: contains multiple epistemological approaches, e.g., positivism and constructivism; column is shaded as the central topic of this paper

“Stats1”: covers statistical concepts but not in a rigorous fashion, e.g., cross-tabs and Chi-square but no formula to derive a Chi-square

“Stats2”: covers inferential statistics in a more rigorous manner, e.g., provides formulae for various measures of association and/or test statistics

“Z,t”: contains tables with values for at least one of Z, t, F, Chi-square, and associated p values

“OLS”: covers regression, either multiple OLS, logistic regression, or both

“Adv.”: statistical techniques presented at an advanced level appropriate for graduate study

Table 2. Thirty Textbooks for Teaching Research Design and Quantitative Methods
(Ranked by sales)

Date	Title	Author(1st)	Publisher		Pages	Rank	Level	Area	Logic design	Mult Meth	Mult Epist	Stats 1	Stats 2	Z,t	OLS	Adv
2016	The Basics of Social Research 7th Edition	Babbie, Earl R.	Wadworth/Cengage	Boston, MA	530	38548	UG	SOCSCI	X	X		X		X		
2007	Data Analysis Using Regression and Multilevel/Hierarchical Models	Gelman, Andrew	Cambridge University Press	New York, NY	648	35061	GR	SOCSCI	X						X	X
2014	Regression Models for Categorical Dependent Variables Using Stata	Long, J. Scott	Stata Press	College Station, TX	589	223123	GR	SOCSCI	X						X	X
2015	The Practice of Social Research 14th Edition	Babbie, Earl R.	Wadworth/Cengage	Boston, MA	592	108359	UG	SOCSCI	X	X		X		X		
1994	Designing Social Inquiry: Scientific Inference in Qualitative Research	King, Gary	Princeton University Press	Princeton, NJ	300	80468	UG/GR	SOCSCI	X				X			X
2008	A Guide to Econometrics 6th Edition	Kennedy, Peter	Wiley-Blackwell	Hoboken, NJ	598	149735	GR	SOCSCI	X				X		X	X
2010	Rethinking Social Inquiry: Diverse Tools, Shared Standards 2nd Edition (edited volume)	Brady, Henry E.	Rowan & Littlefield	Lanham, MD	428	201384	GR	SOCSCI	X							
1993	An Introduction to Models in the Social Sciences	Lave, Charles A.	University Press of America	Lanham, MD	432	520988	GR	SOCSCI	X							
2016	The Essentials of Political Analysis 5th Edition	Pollock, Philip H. III	CQ Press	Thousand Oaks, CA	280	203424	UG	POLSCI	X				X	X	X	
2013	The Fundamentals of Political Science Research 2nd Edition	Kellstedt, Paul M.	Cambridge University Press	New York, NY	316	213426	UG/GR	POLSCI	X				X	X	X	X
2016	Political Science Research Methods 8th Edition	Johnson, Janet Buttolph	CQ Press	Thousand Oaks, CA	632	323016	UG	POLSCI	X	X	X		X	X	X	
2018	Econometric Analysis, 8th Edition	Greene, William H.	Pearson	New York, NY	1168	346005	GR	SCI						X	X	X
2012	The Craft of Political Research 10th Edition (ranking is 9th ed.)	Shively, W. Phillips	Routledge	New York, NY	202	616398	UG	POLSCI	X			X				
2008	Basic Econometrics 5th Edition	Gujarati, Damodar N.	McGraw-Hill/Irwin	New York, NY	944	340414	GR	SCI						X	X	X
2011	Basics of Social Research: Qualitative and Quantitative Approaches 3rd Edition	Neuman, W. Lawrence	Pearson Longman	Boston, MA	432	370594	UG	SOCSCI	X	X	X	X				
2010	Empirical Political Analysis: Research Methods in Political Science 8th Edition	Brians, Craig Leonard	Routledge	New York, NY	446	470245	UG	POLSCI	X	X			X	X	X	
1998	Unifying Political Methodology: The Likelihood Theory of Statistical Inference	King, Gary	University of Michigan Press	Ann Arbor, MI	288	639289	GR	POLSCI	X						X	X
2016	Applied Regression Analysis and Generalized Linear Models	Fox, John	Sage	Thousand Oaks, CA	816	341590	GR	SOCSCI							X	X
2012	Political Science Research in Practice (edited volume)	Malici, Akan	Routledge	New York, NY	232	614176	UG	POLSCI	X	X		X				
2015	Research Methods for Political Science: Quantitative and Qualitative Methods 2nd Edition	McNabb, David E.	Routledge	New York, NY	448	1298534	UG	POLSCI	X	X	X	X				

Date	Title	Author(1st)	Publisher		Pages	Rank	Level	Area	Logic design	Mult Meth	Mult Epist	Stats1	Stats2	Z,t	OLS	Adv
2014	The Elements of Social Scientific Thinking 11th Edition	Donovan, Todd	Wadsworth/Cengage	Boston, MA	208	695583	UG	SOCS	X			X				
2013	Research Methods in Political Science: An Introduction Using MicroCase 8th Edition	Le Roy, Michael K.	Wadsworth/Cengage	Boston, MA	320	660344	UG	POLSCI				X				
2014	Understanding Political Science Research Methods: The Challenge of Inference	Barakso, Maryann	Routledge	New York, NY	250	805373	UG	POLSCI	X	X		X				
2015	Understanding Political Science Statistics: Observations and Expectations in Political Analysis	Galderisi, Peter	Routledge	New York, NY	364	1114836	UG	POLSCI	X				X	X	X	
2003	Doing Empirical Political Science Research	Carlson, James M.	Houghton Mifflin	Boston, MA	512	1314839	UG	POLSCI	X	X			X	X	X	
2017	Political Research Methods & Practical Skills 2nd Edition	Halperin, Sandra	Oxford University Press	Oxford, UK	488	1316250	UG	POLSCI	X	X	X	X				
2008	Research Methods in Politics	Pierce, Roger	Sage	Thousand Oaks, CA	352	1867661	UG	POLSCI	X	X		X				
2004	Researching the Polity: A Handbook of Scope and Methods	Jones, Laurence	Atomic Dog	Mason, OH	372	3600890	UG	POLSCI	X				X	X	X	
2007	Research Design in Political Science: How to Practice What They Preach (edited volume)	Gschwend, Thomas	Palgrave	New York, NY	243	3765478	UG/GR	POLSCI	X	X						X
2014	Political Science Research Methods: Exploring America at a Crossroads	Clark, Cal	World Sci. Publishing	Singapore	364	6444209	UG	POLSCI	X			X				

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“Z,t”: contains tables with values for at least one of Z, t, F, Chi-square, and associated p values

“OLS”: covers regression, either multiple OLS, logistic regression, or both

“Adv.”: statistical techniques presented at an advanced level appropriate for graduate study

Table 3. Seven Textbooks for Teaching Common Undergraduate Courses on Research Design and Quantitative Methods
(Ranked by sales)

Date	Title	Author(1st)	Publisher		Pages	Rank	Level	Area	Logic design	Mult Meth	Mult Epist	Stats 1	Stats 2	Z,t	OLS	Adv
2016	The Essentials of Political Analysis 5th Edition	Pollock, Philip H. III	CQ Press	Thousand Oaks, CA	280	203424	UG	POLSCI	X				X	X	X	
2013	The Fundamentals of Political Science Research 2nd Edition	Kellstedt, Paul M.	Cambridge University Press	New York, NY	316	213426	UG/GR	POLSCI	X				X	X	X	X
2016	Political Science Research Methods 8th Edition	Johnson, Janet Buttolph	CQ Press	Thousand Oaks, CA	632	323016	UG	POLSCI	X	X	X		X	X	X	
2010	Empirical Political Analysis: Research Methods in Political Science 8th Edition	Brians, Craig Leonard	Routledge	New York, NY	446	470245	UG	POLSCI	X	X			X	X	X	
2015	Understanding Political Science Statistics: Observations and Expectations in Political Analysis	Galderisi, Peter	Routledge	New York, NY	364	1114836	UG	POLSCI	X				X	X	X	
2003	Doing Empirical Political Science Research	Carlson, James M.	Houghton Mifflin	Boston, MA	512	1314839	UG	POLSCI	X	X			X	X	X	
2004	Researching the Polity: A Handbook of Scope and Methods	Jones, Laurence	Atomic Dog	Mason, OH	372	3600890	UG	POLSCI	X				X	X	X	

See text of the paper for details on these classifications

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“Rank” is Amazon’s ranking within “Books” and averaged across three dates (March 3rd, 10th, and 21st of 2018)

UG = undergraduate level; GR = graduate level

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“OLS”: covers regression, either multiple OLS, logistic regression, or both

“Adv.”: statistical techniques presented at an advanced level appropriate for graduate study

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