

Advanced Quantitative Analysis I: Survey Methods

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Lectures: Jan. 23, Jan. 30, Feb. 6., Feb. 13, Feb. 20, Feb. 27, Mar. 6, 2018
GCASL 279, 6:45-8:25pm

Course Description: *Prepares students to evaluate, use, and conduct surveys for their many uses in modern social science applications. Students will examine the technical challenges for moving from theory to practice, including building an understanding of the tradeoffs involved in different approaches. The course covers issues in implementation, design, and analysis and includes the use of statistical software to produce research output.*

This course may be taken as a stand-alone course or followed by Advanced Quantitative Analysis II, which is taught in the back half of the spring semester.

Textbook and Materials: Readings for this course will be posted online via NYU Classes. There are a few things you need to get, although some of these you may have already, or you may have some options to get access to these beyond purchasing them.

- **Required.** Access to a current version of Stata (IC or SE, not “Small Stata”). You can buy a copy at student rates, rent a copy for a period of time, or use NYU’s “Virtual Computer Lab” (VCL) to access Stata for free – although students report very mixed experiences with the VCL.
- **Recommended.** In most quantitative courses that I teach, I recommend students get a copy of Charles Wheelan’s 2013 book *Naked Statistics: Stripping the Dread from the Data*. It’s a nice refresher on basic statistics and readable in an afternoon. This costs about \$15.
- **Recommended.** This is probably the most useful textbook I own: Michael Mitchell’s 2012 *A Visual Guide to Stata Graphics 3e* (Stata Press). Stata books can be fairly expensive, but I have found this one particularly helpful.

There are some other books you may want to get. The lecture materials are built from a combination of personal experience, news coverage and practitioner reporters, publicly available survey documentation, academic articles, and bits and pieces of books that I like. To the extent additional “textbook” sources underlay the course, they are:

- **Reference.** Heeringa, West, and Berglund, *Applied Survey Data Analysis, 2e* (CRC Press, 2017).
- **Reference.** Long and Freese. *Regression Models for Categorical Dependent Variables Using Stata, 3e.* (Stata Press, 2014).¹
- **Reference.** Tourangeau, Rips, and Rasinski. *The Psychology of Survey Response.* (Cambridge U. Press, 2000).

¹ This is also useful for Advanced Quantitative Analysis II.

Course Requirements & Grading: This is a practical skills-oriented advanced graduate course, so the assessments are more limited:

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|-------------------|----------|---------------|
| Assignment #1 | 20% | Due Feb. 13th |
| Assignment #2 | 20% | Due Feb. 27th |
| Final Assignment | 35% | Due Mar. 9th |
| Participation | 25% | |
| At-home Exercises | Ungraded | |

The participation requirement here is serious: I'll read and then score your total contributions on the course forum (through NYU Classes), where you are expected to comment on the reading, work through the exercises, ask questions, provide outside materials, and otherwise engage with the rest of the group as an intellectual community.

Course Administration via NYU Classes: All announcements will be delivered through NYU Classes and materials and assignments posted there. Participation in the forum is expected, as outlined above. I may modify assignments, due dates, and other aspects of the course as we go through the term with advance notice provided as soon as possible through the course website. Materials are organized week-by-week in the Resources folder, with the exception of multi-week assignments which have their own folders.

Academic Integrity: The students and faculty at NYU are very concerned about academic integrity. Each student should have the assurance that the rules of the game are understood by everyone and enforced equally. Students are encouraged to learn and study together. Individual assignments are just that, but mutual assistance is appropriate. The Wagner School has an academic code that is available here:

<http://wagner.nyu.edu/students/policies/academic-code>.

Every student is expected to maintain academic integrity and is expected to report violations to me. If you are unsure about what is expected of you, *ask*.

Additional Administrative Details / Responses to Frequently Asked Questions

- If you want a response to an email: make sure you write a compelling subject line and make clear what you want and when you want it. Aside from personal matters, questions about the course content should go on the forum.
- You are responsible for obtaining any materials distributed in or outside of class. If you cannot find something on NYU Classes, post an inquiry on the forum.
- I understand many of you have children at home or work responsibilities that may require you to monitor your phones for incoming messages -- that is ok, just do it quietly.
- I reserve the right to revise this syllabus as the term progresses. I have made at least some changes to the syllabus in nearly every semester of every course I have taught

– so expect this. If I make changes to the syllabus, I will also use the course email system to notify you.

- Bring your laptop to class.

Policy Regarding Disability Services and Programs

Students with disabilities are encouraged to register with the Moses Center for Students with Disabilities, 726 Broadway, 2nd Floor, (212-998-4980). Reasonable accommodations can be made for students with qualified disabilities, but only for students who have registered with the Moses Center and provide documentation from that office. Please be sure to make these arrangements in the first week of the term.

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Schedule

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Items listed in this schedule are intended to be completed *in advance* of that day's lecture. Not listed here: ungraded exercises in class and at home. I'll point these out week-by-week and help you locate them on NYU Classes.

Lecture 1 (Jan. 23): Why Polling? The Social Science Context.

Nothing required in advance. This lecture covers why surveys are an important source of data for social scientists and public service practitioners.

Lecture 2 (Jan. 30): The Statistical Theory.

This lecture is about how we can use small survey samples to make judgments about larger populations. The challenge, of course, is in the practical implementation of the theory. Some of these discussions will carry over into the following two weeks. Read:

- Wong, Alia. 2016. "Why the Prevalence of Campus Sexual Assault is So Hard to Quantify: Every statistic seems to be contradicted by another one." *The Atlantic*, Jan. 26, available online here:
 - <https://www.theatlantic.com/education/archive/2016/01/why-the-prevalence-of-campus-sexual-assault-is-so-hard-to-quantify/427002/>. (PDF in the folder).
- The methodology section from the UC Campus Climate Project Final Report. Note that this is only three pages in a 288 page document; you can find it here:
 - <http://campusclimate.ucop.edu/common/files/pdf-climate/ucsystem-full-report.pdf> (PDF also in the course folder).²
- Silver, Nate. 2012. "Before Citing a Poll, Read the Fine Print." *FiveThirtyEight.com*, Jan. 15. Available online here:
 - <https://fivethirtyeight.com/features/before-citing-a-poll-read-the-fine-print/> (PDF in the folder).
- Silver, Nate. 2015. "Polling Is Getting Harder, But It's a Vital Check on Power." *FiveThirtyEight.com*, June 3. Available online here:
 - <https://fivethirtyeight.com/features/polling-is-getting-harder-but-its-a-vital-check-on-power/> (PDF in the folder).
- Keeter, Hatley, Kennedy, and Lau. 2017. "What Low Response Rates Mean for Telephone Surveys." Pew, May 15.

² This firm also conducted NYU's 2017 campus climate survey.

- Download the complete pdf of the report, here: <http://www.pewresearch.org/2017/05/15/what-low-response-rates-mean-for-telephone-surveys/> (PDF in the folder).
- If you have not had recent (and successful!) coursework in statistics, particularly on the Central Limit Theorem, then review: Chapters 8 (The Central Limit Theorem), 9 (Inference), and 10 (Polling) from Wheelan's *Naked Statistics*. If you've recently done this and feel comfortable with it, you can skip this.
- Reinhart, Alex. 2015. *Statistics Done Wrong: The Woefully Complete Guide*. San Francisco: No Starch Press. Chapter 2.
 - Note: you can find the main point of his argument here: <https://www.statisticsonwrong.com/power.html>. It's a nice little book, though, and not terribly expensive if you want to buy a copy.

Lecture 3 (Feb. 6): Sampling Decisions

This week focuses in more practical detail on how a researcher will make sampling decisions, continuing the discussion about bridging theory and practice from last week. Read:

- The documentation for The American Panel Survey (TAPS) from the Weidenbaum Center at Washington University in St. Louis.³ You can just scan this – and focus on the implementation rather than the weighting (the subject of the next lecture). You can find the documentation here:
 - http://taps.wustl.edu/files/taps/imce/sampledesignandweighting062012_0.pdf (A PDF is in the folder as well).
- The documentation for the 2016 CCES (Cooperative Congressional Election Study), pp. 1-23 (*not* the whole thing, which is 180+ pages long). You can download it here, along with the data (which we will use):
 - <https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi%3A10.7910/DVN/GDF6Z0> (A PDF is in the folder).
- The documentation for the RAND American Life Panel. This is one survey output from RAND (the main landing page for this is here: <https://www.rand.org/labor/alp.html>). The RAND Survey Research Group does all kinds of interesting things, so please check out their webpage as well: <https://www.rand.org/srg.html>.
 - You can download the pdf of the documentation file from the RAND website: https://www.rand.org/pubs/research_reports/RR1651.html.
- The AAPOR report “The Future of U.S. General Population Telephone Survey Research” (2017). This is quite long, so you should scan for topical interest.
 - <http://www.aapor.org/getattachment/Education-Resources/Reports/Future-of-Telephone-Survey-Research-Report.pdf.aspx>.
- Chang, Linchiat and Jon A. Krosnick. “National Surveys via RDD Telephone Interviewing versus the Internet: Comparing Sample Representativeness and Response Quality.” *The Public Opinion Quarterly* 73, no. 4 (Winter 2009): 641-678.

³ Note: currently, the Associate Director for the TAPS survey is Dr. Betsy Sinclair, Associate Professor of Political Science. She also happens to be one of my sisters (older, wiser, better at math...).

- Gelman and Rothschild (2014) in *The Monkey Cage* for the *Washington Post*: “When should we trust polls from non-probability samples?”
 - Link: https://www.washingtonpost.com/news/monkey-cage/wp/2014/04/11/when-should-we-trust-polls-from-non-probability-samples/?utm_term=.13a29bdbc6e6 (PDF in the folder).

Lecture 4 (Feb. 13): Weighting and Combining Observations.

This lecture focuses on weighting and combining observations from multiple surveys – continuing a discussion of how surveys are actually conducted, what that means for interpreting the information, and how you might try to repair things that go wrong. Read:

- Silver, Nate. 2017. “How We’re Tracking Donald Trump’s Approval Ratings.” *FiveThirtyEight.com*, Mar. 2.
 - Link: <http://fivethirtyeight.com/features/how-were-tracking-donald-trumps-approval-ratings/>. (PDF in folder).
- Cohn, Nate. 2016. “How One 19-Year-Old Illinois Man is Distorting National Polling Averages.” *The New York Times: The Upshot*. October 12.
 - Link: <https://www.nytimes.com/2016/10/13/upshot/how-one-19-year-old-illinois-man-is-distorting-national-polling-averages.html>. (PDF in folder, along with a graphics PDF that did not reproduce in the main document).
- Gelman, Andrew. 2016. “Survey weighting and that 2% swing.” Blog Post, December 1.
 - Link: <http://andrewgelman.com/2016/12/01/survey-weighting-2-swing/>. (PDF in the folder).
- Look at the basic commands for SVY in the stata helpfile – note that this is about 100 pages long, so look at the main commands.
 - Link: <https://www.stata.com/manuals13/svy.pdf>.
- Look at the more readable instructions on the UCLA Stata website: <https://stats.idre.ucla.edu/stata/seminars/applied-svy-stata13/>

Also note: Assignment #1 is due this week. This assignment involves evaluating some survey data from the Public Policy Institute of California (PPIC) statewide surveys in 2010, 2012, and 2014. An assignment sheet will be distributed separately.

Lecture 5 (Feb. 20): Writing Survey Questions.

This lecture focuses on writing survey questions and designing survey questionnaires. Read:

- The survey questionnaires and then selections from Alvarez, R. Michael and J. Andrew Sinclair. 2015. *Nonpartisan Primary Election Reform: Mitigating Mischief*.
- Kelly 2012. “Framing Effects.” In: *Framing Democracy: A Behavioral Approach to Democratic Theory*. Princeton University Press.
- Rasinski 1989. “The Effect of Question Wording on Public Support for Government Spending.” *Public Opinion Quarterly*, 53(3): 388-394.

- Marquis, Marquis, and Polich. 1986. "Response Bias and Reliability in Sensitive Topic Surveys." *Journal of the American Statistical Association*, 81(394): 381-389.

Lecture 6 (Feb. 27): Doing Survey Experiments.

This lecture focuses on connecting surveys and experiments. Read:

- Arceneaux and Butler. 2015. "How Not to Increase Participation in Local Government: The Advantages of Experiments When Testing Policy Interventions." *Public Administration Review*.
- Barabas and Jerit. 2010. "Are Survey Experiments Externally Valid?" *The American Political Science Review*, 104(2): 226-242.
- Peterson, Jordan and Christian Grose. 2017. "What persuades elected officials to remove Confederate symbols? Framing it as good for business." *The Washington Post (Monkey Cage)*, August 21.
 - Link here: https://www.washingtonpost.com/news/monkey-cage/wp/2017/08/21/what-persuades-elected-officials-to-remove-confederate-symbols-framing-it-as-good-for-business/?utm_term=.28a93c559343 (PDF in the folder, absent the images).
 - The paper: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2888763
- Optional but encouraged (using a survey to validate an experiment, rather than a "survey experiment"): King et al. 2007. "A 'Politically Robust' Experimental Design for Public Policy Evaluation, with Application to the Mexican Universal Health Insurance Program." *Journal of Policy Analysis and Management*, 26(3): 479-506.

Assignment #2 is due this week.

Lecture 7 (Mar. 6): Polling and the 2016 U.S. Presidential Election.

The 2016 U.S. presidential election generated a considerable amount of controversy – not just in politics but also in the world of survey research. Read:

- AAPOR report: "Evaluating Survey Quality in Today's Complex Environment." May 2016.
 - Link: http://www.aapor.org/AAPOR_Main/media/MainSiteFiles/AAPOR_Reassessing_Survey_Methods_Report_Final.pdf (PDF in the folder).
- AAPOR report: "An Evaluation of 2016 Election Polls in the United States." May 2017. Scan this document for what is of most interest – it is very long.
 - Link: <http://www.aapor.org/getattachment/Education-Resources/Reports/AAPOR-2016-Election-Polling-Report.pdf.aspx> (PDF in the folder.)
- Katz, Josh. 2016. "Who Will Be President?" *The New York Times (TheUpshot)*. November 8.

- Link: [https://www.nytimes.com/interactive/2016/upshot/presidential-polls-forecast.html? r=0#other-forecasts](https://www.nytimes.com/interactive/2016/upshot/presidential-polls-forecast.html?r=0#other-forecasts) (PDF in folder, although this views better online.)
- Silver, Nate. 2014. "How FiveThirtyEight Calculates Pollster Ratings." *FiveThirtyEight.com*, Sept. 25.
 - Link: <https://fivethirtyeight.com/features/how-fivethirtyeight-calculates-pollster-ratings/> (PDF in the folder).
- Silver, Nate. 2016. "Why FiveThirtyEight Gave Trump a Better Chance Than Almost Anyone Else." *FiveThirtyEight.com*, Nov. 11.
 - Link: <http://fivethirtyeight.com/features/why-fivethirtyeight-gave-trump-a-better-chance-than-almost-anyone-else/> (PDF in the folder).
- Silver, Nate. 2017. Series on the 2016 election (No PDFs in the folders – this is quite long, and located on multiple pages): <http://fivethirtyeight.com/features/the-real-story-of-2016/>

Final Assignment: Due March 9th. This is a take-home assignment which you may complete from any location. It will be open-note, open-book, open-internet-resources. Much as with the other assignments, you may also discuss this with your classmates, although you must in the end produce your own (individual) work.