POL 200B
Quantitative Methods for Social Science
Lecturer: Tess Wise
T,F 9:30 am – 10:50 am
Goldfarb Library 230

Contact Info:
wise@brandeis.edu
Office Hours: Tuesdays after class
(304) 249-8377

Course Description: The use of quantitative methods has become ubiquitous in the social sciences. In principle and in practice, it is not hard to use these methods; the hard part is figuring out which method is appropriate for which question. This course will provide you with an introduction to popular quantitative methods, including linear regression, ANOVA, time-series analysis, and logistic regression. The main focus of the course will be on "quantitative literacy," which we will develop by reading contemporary scholarship from across the social sciences. We will also learn how to implement these quantitative methods in STATA. I want this class to be as useful as possible for *you*. If there are methods you want to learn about that are not currently on the syllabus, please, please, please (seriously, *please*) let me know ASAP and I will work them in. Additionally, each week we will be reading discussion papers that use the methods we are studying. But if *you* have a paper that you would like to discuss, I really, strongly encourage you to bring it to the class so that we can all discuss it together! I want this to be a space of shared scholarship. Bringing in work that interests you will make the class better for everyone (plus it might allow you to cut down on some of your reading for other classes).

Class Structure: We will meet twice a week on Tuesdays and Fridays. Each week we will work on a particular quantitative method. We'll have short background readings on the "method of the week" (for Tuesday's class) and read contemporary research papers that use it (for Friday's class). The background readings will include both a conceptual and statistical description of that week's method. Many of these "readings" are just my own notes, but I'll probably suggest a reference text once we figure out which topics we'll be covering.

Tuesday's class will be more "lecture style" and will include both a description of that week's method and an explanation of how to code it in STATA. I want this to be an "open lecture," and you should absolutely feel free to ask lots of questions (and don't be afraid that your question sounds stupid!). Each Tuesday, we'll have a homework assignment with two components, one conceptual, one coding, which will then be due the following Tuesday.

Friday's class will be more "discussion style." First, one student will give a "mini presentation" describing one of that week's research papers. Then, we'll have a general class discussion about it. I will also be happy to answer any lingering questions from Tuesday. On Fridays, we will also decide which papers to discuss the following week (based on the syllabus and your suggestions!), decide who will be giving the "mini presentation," and distribute the readings for the next class (they'll also be posted online).

At the end of the class, you will all present your final projects (described in detail below).

Grade Distribution:

Weekly Assignments	30%
Mini-Presentations	15%
Final Project	40%
Participation	15%

Weekly Assignments: Your assignments should be submitted through LATTE before the start of Tuesday's class. Please send me three files:

1. A .pdf or .doc file with your responses to the conceptual assignment (1 or 2 pages).
2. A .do file with your commented coding assignment
3. A .pdf file with any graphs or tables.

These assignments will be graded on a "Plus-Check-Minus" scale. At the end of semester, your assignment with the lowest grade will be dropped. The weekly assignments count for 30% of your grade, so please take the time to do them carefully.

Mini-Presentations: Each week, one of you will give a "mini presentation" on one of that week's research papers (we'll decide on Friday who will go next and try to maintain a fair balance between you). For a mini presentation, you should present a short overview of the paper, offer some critique or commentary on its use of quantitative methods, and provide two discussion questions to start the general class discussion.

Final Project: There are two options for your final project, each of which will (I hope) prove interesting and exciting. You should feel free to choose whichever option suits you best:

1. **Write an original research paper:** Your paper should have a succinct literature review and explain your reasons for asking your question. Your paper must use at least one of the methods discussed in the class (you should not feel pressured to use multiple rather, focus on whether the method is well suited to your topic). Your paper should explain your choice of methods in both conceptual and statistical terms, including comparing it to the alternatives. If you want to conduct original survey research, you are more than welcome to, but I ask that you please contact me as soon as possible so we can make sure that the paper can be completed on time.
2. **Replicate the work of an existing paper:** Your paper will recreate the work of a previously published paper of your choice. The paper you select must use at least one method discussed in the class. You will be responsible for securing the necessary data (either from an online repository or the original author). The structure for this paper is more flexible, but you must reproduce (or show why you can't reproduce) the major tables from the original paper. You should also either (1) use a different (and hopefully better!) method and explain your choice or (2) critically examine the author's theoretical assumptions and the "fit" between method and theory.

Timeline for Final Projects: To prepare for your final project, you must schedule two individual meetings with me. First, we'll have an individual meeting before **Friday, February 28**.

We'll talk about your research interests and have a preliminary, non-binding discussion about what you want to do for your final project.

After that, we'll have another individual meeting before **Tuesday, April 1**. At this meeting we'll finalize your topic and talk about any questions you have or difficulties you're encountering. Between these two meetings, you should make sure you have secured the data you will use for your final project (whichever option you choose). If you have any problems with getting the data – or just want to discuss your work – please contact me! I always want to hear from you, and it is always better to address any problems as soon as we can.

A polished draft of your paper is due by **Wednesday, April 23**. This will give us all time to read your paper before you present it to the class.

The final two classes (**Friday, April 25** and **Tuesday, April 29**) will be devoted to short in-class presentations of your final projects. Your presentation does not have to be particularly formal. I just want you to have an opportunity explain why your research is super awesome, and give your classmates an opportunity to give you feedback.

The final version of the paper is due on **Tuesday, May 13** by midnight. Please email the papers to me in .pdf and include a .do file of any coding you did.

Participation: Quantitative methods can be intimidating. All those equations and symbols and graphs! Therefore, I ask all of you to please, 100% sincerely *please* feel free ask questions if you are confused. (I say this as someone who has too often sat in confused silence!) We all have different backgrounds, and constructive, friendly participation is the best way for everyone to learn. Please do not be afraid that your question will seem stupid, and please, please be kind and considerate to your classmates. I am sorry even to have to say this, but after far too many quant class discussions gone awry, I feel obliged to point out that using your better knowledge of statistics to attack the views of your classmates does not make you seem smarter, it makes you seem rude!

The one formal part of the participation requirement is that during the semester you'll need to bring in at least one discussion paper, but it would be wonderful if everyone brought in more.

Tentative Course Schedule:
This schedule is extremely tentative and will be modified to suit the desires of the class.

Class	Content
Tuesday, January 14	Intro, Quantification and Correlations
Friday, January 17	Discussion: • Theodore M. Porter. *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*. Princeton University Press, 1996, Chapter 4 • A. Gelman. *Red State, Blue State, Rich State, Poor State: Why Americans Vote the Way They Do (Expanded Edition)*. Princeton University Press, 2009, Chapters 1 and 2
Tuesday, January 21	Summary Statistics, Group Comparisons (ANOVA and t-tests) Extra background: • Nassim Taleb on Standard Deviation: `http://www.edge.org/response-detail/25401` • A useful reference (when to use what test): `http://goo.gl/nHNxuA`
Friday, January 24	Discussion: • Robert Crosnoe. Low-income students and the socioeconomic composition of public high schools. *American Sociological Review*, 74(5):709–730, 2009 • Devorah Manekin. Violence against civilians in the second intifada the moderating effect of armed group structure on opportunistic violence. *Comparative Political Studies*, 46(10):1273–1300, 2013 • OPTIONAL: Theodore M Porter. Funny numbers. *Culture Unbound: Journal of Current Cultural Research*, page 585, 2012

Tuesday, January 28	Regression I Extra background: • STRONGLY RECOMMENDED: Charles Wheelan. *Naked Statistics: Stripping the Dread from the Data*. WW Norton, 2013, Chapter 11 • OPTIONAL (more technical): CR Shalizi. Advanced data analysis from an elementary point of view. *Unpublished lecture notes, Carnegie Mellon University*, 2012, Chapter 17 (`http://goo.gl/epBCo7`). You can also get the complete 500 page set of notes if you're feeling particularly masochistic: `http://goo.gl/qhuqu` • OPTIONAL (more historical): Jeffrey M Stanton. Galton, pearson, and the peas: A brief history of linear regression for statistics instructors. *Journal of Statistics Education*, 9(3), 2001 `http://goo.gl/yIcr59` • OPTIONAL (a good overview of the many different ways to use regression): Richard Berk. What you can and can't properly do with regression. *Journal of Quantitative Criminology*, 26(4):481–487, 2010
Friday, January 31	Discussion: • James L Gibson. Truth, justice, and reconciliation: Judging the fairness of amnesty in south africa. *American Journal of Political Science*, pages 540–556, 2002

Tuesday, February 4	Regression II Extra Background: • OPTIONAL (overview of interaction terms): `http://goo.gl/dVCiNf` • OPTIONAL (more technical): Bear F Braumoeller. Hypothesis testing and multiplicative interaction terms. *International organization*, pages 807–820, 2004 • OPTIONAL (also more technical): Thomas Brambor, William Roberts Clark, and Matt Golder. Understanding interaction models: Improving empirical analyses. *Political analysis*, 14(1):63–82, 2006
Friday, February 7	Discussion: • Joe Soss. Lessons of welfare: Policy design, political learning, and political action. *American Political Science Review*, pages 363–380, 1999
Tuesday, February 11	Regression III
Friday, February 14	• Ana De La O. Do conditional cash transfers affect electoral behavior? evidence from a randomized experiment in mexico. *American Journal of Political Science*, 57(1):1–14, 2013
Tuesday, February 18	• NO CLASS – Midterm Recess
Friday, February 21	• NO CLASS – Midterm Recess
Tuesday, February 25	Binary Outcome Models I
Friday, February 28	• Alexander Lee. Who Becomes a Terrorist?: Poverty, Education, and the Origins of Political Violence. *World Politics*, 63(02):203–245, 2011 • James D Fearon and David D Laitin. Ethnicity, insurgency, and civil war. *American political science review*, 97(01):75–90, 2003
Tuesday, March 4	Binary Outcome Models II
Friday, March 7	Discussion, TBA

Tuesday, March 11	Panel Methods I
Friday, March 14	Discussion, TBA
Tuesday, March 18	Panel Methods II
Friday, March 21	Discussion, TBA
Tuesday, March 25	Hierarchical Linear Models
Friday, March 28	Discussion, TBA
Tuesday, April 1	Causal Inference with potential outcomes
Friday, April 4	Discussion, TBA
Tuesday, April 1	Instrumental Variables, RDD, Matching
Friday, April 4	Discussion, TBA
Tuesday, April 8	Advanced Topics (Text Analysis, Missing Data) and Conclusion
Friday, April 11	Discussion, TBA
Tuesday, April 15	• NO CLASS – Spring Recess
Friday, April 18	• NO CLASS – Spring Recess
Tuesday, April 22	• NO CLASS – Spring Recess
Friday, April 25	• Final Presentations
Tuesday, April 29	• Final Presentations

Recommended Texts

We will not be using a particular textbook for this class, but if you are looking for some good (accessible) references, the two books that I recommend are:

- For the first half of the class – Charles Wheelan. *Naked Statistics: Stripping the Dread from the Data.* WW Norton, 2013
- For the second half of the class – Joshua D Angrist and Jörn-Steffen Pischke. *Mostly harmless econometrics: An empiricist's companion.* Princeton University Press, 2008