

ADVANCED QUANTITATIVE METHODS
POLS 8830, CRN 86973, SEC 002

LOCATION: LANGDALE 1081, T 4:30-7:00PM

INSTRUCTOR: RYAN CARLIN

EMAIL: rcarlin@gsu.edu

OFFICE HOURS: R 1:00-4:00PM, LANGDALE 1065 OR BY APPT

TEACHING ASST.: ÖZLEM TUNÇEL GURLEK

EMAIL: otuncelgurlek1@student.gsu.edu

OFFICE HOURS: M & H 2:30-4:00PM, LANGDALE 1027

Course Objectives

The primary purpose of this course is to build upon previous methods courses to help student develop a better understanding of theoretical and empirical models and the complex relationships between the two. In addition to traditional modeling, this course will also introduce you to commonly used quantitative approaches to measurement reliability and validity; a suite of maximum likelihood estimate (MLE); techniques to interpret MLE results and interactions; and multilevel models.

While the classic linear regression model (OLS) forms the foundation for much empirical work in applied political science research, many of the questions we seek to answer require us to conduct analyses that would violate one or more of its key assumptions. As such, this course will focus on models that will allow you to expand your methodological toolkit. Most of these stem from the generalized linear model (GLM)—a large class of models estimated with MLE in situations where OLS is inappropriate.

My primary goal is the help you achieve a basic applied understanding of the most prominent of these models, so that you can use these techniques in your own research. Moreover, this course should provide you with a foundational understanding of GLMs so that you can continue to add to your toolkit on your own by learning new techniques and additional variants on the ones covered in this course. As the focus in this class is primarily applied, those students seeking a more in depth technical understanding should consult the recommended texts below and/or talk to me individually.

As we discuss new families of statistical models, our course Teaching Assistant (TA) and I will provide R (and often **Stata**[™]) syntax and briefly go over how to model these approaches in R. Software resources demonstrated in class can be found on [Özlem Tunçel's website](#). If you need help with software, please meet with the course TA during office hours. Additionally, please check out the website for the [Library's Research Data Service](#). They offer workshops (live and recorded) and one-on-one consults; you can also get a data analysis credential from that program.

This syllabus represents the plan for the course. Conditions may, however, call for its modification. If I do so, I will alert you with due anticipation. The nature of the course will be flipped: students should read and listen to the pre-recorded lectures located on iCollege ahead of time, so that class time can be spent most efficiently.

Required Texts

- Long, J. Scott. 1997. *Regression Models for Categorical and Limited Dependent Variables*. Thousand Oaks, CA: Sage Publications.
- Additional required readings will be electronically distributed throughout the semester as necessary.

Recommended Texts

This list of texts are also *highly* recommended for those students serious about using applied quantitative techniques in their own research. While none of the following are necessary for this course, all are books that you should seriously consider purchasing at some point early in your career. [Note: for many of the recommended texts it is possible to find older editions used through Amazon or other online retailers.]

- Eliason, S. R. 1993. *Maximum Likelihood Estimation: Logic and Practice*. Newbury Park, CA: Sage. [Simple introduction to MLE.]
- Evans, Merran, Nicholas Hastings, and Brian Peacock. 2010. *Statistical Distributions*, 4th edition. New York: John Wiley & Sons, Inc. [Very thorough overview of the properties of all major (and some not-so-major) families of statistical distributions.]
- Moore, Will H. and David A. Siegel. 2013. *A Mathematics Course for Political and Social Research*. Princeton, NJ: Princeton University Press.
or
Gill, Jeff. 2006. *Essential Mathematics for Political and Social Research*. New York: Cambridge University Press. [A very good overview of basic mathematical concepts in algebra, calculus, and linear algebra.]
- King, Gary. 1998. *Unifying Political Methodology: The Likelihood Theory of Statistical Inference*. Ann Arbor, MI: University of Michigan Press. [A good theoretical overview of MLE.]
- Kim, Jae-On and Charles W. Mueller. 1978. *Introduction to Factor Analysis: What It Is and How To Do It*. Thousand Oaks, CA: Sage.
- Long, J. Scott and Jeremy Freese. 2006. *Regression Models for Categorical Dependent Variables Using Stata*. College Station, TX: Stata Press. [Companion to the primary text. Provides Stata code and examples for most of what we do in this class. Note: you can find all of this information online for free with a bit of effort.]
- Carmines, Edward G. and Richard A. Zeller. 1979. *Reliability and Validity Assessment*. Thousand Oaks, CA: Sage. [Good introduction to the basics of correlational tests of reliability and validity.]

Also, it is extremely important to have at least one good text on linear models. The following list contains those that I am most familiar with, but there are several additional texts that would be just as useful for this purpose.

- Fox, John. 2006. *Applied Regression Analysis and Generalized Linear Models* 2nd edition. Thousand Oaks, CA: Sage. [Good text on linear models. Nice balance between accessibility and technical detail.]
- Greene, William H. 2011. *Econometric Analysis*, 7th Ed. Upper Saddle River, NJ: Prentice-Hall. [The ‘bible’ of econometrics. Very technical and not at all intuitive, but an authoritative source on almost any (non-Bayesian) technical topic.]
- Gujarati, Damodar N. 2002. *Basic Econometrics*, 4th Edition. New York: McGraw-Hill. [A decent introductory level text.]
- Kennedy, Peter. 2003. *A Guide to Econometrics*, 5th edition. Cambridge, MA: MIT Press. [The most ‘intuitive’ Econometrics text I have ever used. Covers topics from OLS through some basic MLE models.]
- Kmenta, Jan. 1997. *Elements of Econometrics*, 2nd edition. Ann Arbor, MI: University of Michigan Press. [Less intuitive than Kennedy or Gujarati, but more accessible than Greene.]

Works below are more topical and recommended only to those seeking greater knowledge in a given area.

Limited Dependent Variable Models

- Agresti, Alan. 2002. *Categorical Data Analysis*, 2nd Ed. New York: Wiley.
- Maddala, G. S. 1983. *Limited-Dependent and Qualitative Variables in Econometrics*. New York: Cambridge University Press.

Survival Models

- Box-Steffensmeier, Janet M., and Bradford S. Jones. 2004. *Event History Modeling: A Guide for Social Scientists*. New York: Cambridge University Press.

Multilevel Models

- Gelman, Andrew, and Jennifer Hill. 2007. *Data Analysis Using Regression and Multilevel/Hierarchical Models*. Cambridge: Cambridge University Press. [Note: this text also offers a review of linear models and GLMs and provides R code for all examples.]

Course Requirements

Final grades for this course will be comprised of four (4) components:

Participation	5%
Problem Sets	25%
Research Project	40%
Final Exam	30%

Final grades will be calculated using the following scale:

A	89.5-100%
B	79.5-89.49%
C	69.5-79.49%
D	59.5-69.49%
F	0-59.49%

1. **Participation** → As this is a graduate level course, participation in discussion is an essential component of the learning process. While the nature of a methods class requires that there will be some lecture, there will be ample opportunity for students to offer their thoughts. It is my expectation that all students will avail themselves of these opportunities. Also, I will assign recommended readings some weeks that provide an application of a technique explored that week, and about which we can begin the following class with a brief discussion.
2. **Problem Sets** → Problem sets will be distributed periodically throughout the semester. Most will focus on the application of the specific statistical techniques to actual or simulated datasets I will provide. As noted above, I require that you save a batch or log file for all analyses that you can present to me upon request should I need to replicate your results. For the copy you submit, all results presented must be formatted into professional looking tables (i.e. do not simply cut and paste the raw output from your software package). Collaboration on problem sets is not only allowed, but it is encouraged. However, each student must complete a final write-up on their own and to submit it via iCollege before class begins the days they are due.
3. **Research Project** → Each student will be responsible for completing a research paper of the quality one would expect to submit for a professional conference. The paper must either 1) apply one of the techniques covered in the course to address a substantive question in political science scholarship, 2.) introduce a new or innovative measurement or methodological approach that builds from one of the techniques covered in this course, or 3.) discuss some technical problem common to

applied research, while offering a solution and set of recommendations for dealing with the issue. The research project will be due in stages as outlined below:

- **Proposal:** On September 15, a short research proposal outlining their project idea is due (one paragraph is all you need here). This should mirror a conference proposal to the extent possible (see **Stimson_OnConferenceProposals.pdf** in iCollege folder **Tips & Tools**). This is worth 10% of the final project grade.
 - **Research Paper Draft:** A relatively polished draft of your paper will be due on November 3. This will need to be submitted electronically via iCollege. This draft should be blinded (i.e. your name and other identifying information should be removed). This is worth 10% of the project grade.
 - **Reviews:** Each student will be assigned one paper to review. These will need to mirror the reviews one would write as a referee for a journal manuscript in substance and style. The reviews will be due via iCollege on November 10. This is worth 10% of the project grade.
 - **Presentation:** The final two class sessions will be reserved for student presentations. Each week, half of the class will present their paper, while the other half will be a “audience.” These will take place on November 17 and, if necessary, December 1. This is worth 30% of the project grade.
 - **Final Paper:** Your final paper should be of the quality you would submit for an academic conference. It should be polished and complete. It should also take into account comments and suggestion made by the anonymous reviewer. This is due via iCollege on December 1, and is worth 30% of the project grade.
 - **Memo:** Along with your paper, you will also submit a memo discussing the edits you made in light of the reviews. This should mirror the memo one would submit along with their revised manuscript after an R&R. The memo is due via iCollege is due on December 1. This is worth 10% of the project grade.
4. **Final Exam** A take-home final exam will be distributed at the final class meeting, and students will have 72 hours to complete and submit a typed response. Students may use any necessary resource in completing their exam such as textbooks, articles, and class notes. However, unlike the problem sets, collaboration with other students is strictly prohibited on the exam. Details on the format will be provided closer to the end of the semester.

Grading Policies

1. **Late Work:** As this is a graduate level course, attendance for every class is an expectation. However, I understand that emergencies do occur. If you are not going to be able to make class due to some type of emergency situation, you need to contact me in advance and make arrangements to get any assignments to me. You are also responsible for getting notes for any material covered in your absence from one of your fellow students.
2. **Written Assignments:** All written assignments are due at the beginning of the class period on the assigned due date. All assignments must be prepared according to the following guidelines. If these are not followed, points will be deducted:
 - (a) Type your name and the title of your paper on the top of the first sheet of paper.
 - (b) Use standard letter ($8\frac{1}{2}$ x 11”) paper.
 - (c) Use 1” margins.
 - (d) Use size 11 or 12-point font.

- (e) Use a standard font: Times New Roman (default in Word for PC), Cambria (default in Word for Mac), Computer Modern Roman (default with L^AT_EX).
- (f) Type your name and the title of your paper on the top of the first sheet of paper. A cover page is also allowed.
- (g) Print in black ink.
- (h) Double space.
- (i) Fasten the pages in their proper order.
- (j) All assignments should be emailed directly to me in pdf format. No assignments will be accepted as Word documents.
- (k) Also, to reiterate the point made above: *all mathematical formulae must be correctly typeset and all results must be presented in professional looking tables or graphs.*

Software Note

It will be essential for this course that you have a solid understanding of at least one statistical software package in order to complete all of the problem sets and your research project. While the TA will provide some examples in class using R (notes may include some commands in Stata[™]) to help you understand the basics, **it is expected that you will primarily learn the necessary software outside of class.**

You will need to keep copies of all batch files where `filename` is whatever arbitrary name you choose for the file with the `.txt` extension). If it becomes necessary for me to replicate any of your analyses, you will need to supply these files upon request. If you have a strong desire to use an alternative software package for your analyses, this is your choice and I recommend that you discuss it with me in advance. However, the TA and I can only advise you in R and Stata[™]. Use of Excel or SPSS for statistical analyses is **NEVER** acceptable, as they are prone to errors even in estimating relatively simple statistics.

In addition to statistical software, you will also need a way to typeset mathematical equations. As you will note below, I require all assignments to be typeset. While MS Word has the ability to do this, it is cumbersome and visually unappealing. I recommend that you take the opportunity to learn L^AT_EX while in this class. Not only will it allow you to produce documents that look professionally typeset, but it will save you time down the road when you begin to put together your thesis and/or dissertation. Any student interested in learning more about L^AT_EX can find lots of information to get started on the Dr. Fix's

[Computing page](#).

0.1 Artificial Intelligence Policy

Generative AI tools, such as ChatGPT, are designed to assist in creating and analyzing text, code, video, audio, and other multimedia. Use of these resources in your coursework comes with benefits and risks. In this course, the rules for AI usage are as follows: you may only use AI to generate or translate code for statistical software. This is the only approved use. Any unapproved use within the course might be considered a breach of academic honesty. While exercising responsible and ethical engagement with AI is a skill you may hone over time, your unique human insights, critical thinking, and creative contributions remain pivotal to your learning experiences and success.

Communication Policy

E-mail is the preferable method for contacting the instructor for any reason, and the only way to guarantee that I have received a message. Do not attempt to communicate with me via iCollege. You should not assume that I have received an e-mail unless, and until, you get a reply from me. If you do not receive a reply to an e-mail within 24 hours (weekends excluded), you should resend the e-mail.

Expectations for Classroom Behavior

It is the expectation of the instructor that students will behave in a professional manner in this class. Many of the issues discussed are ones that many of us have strong personal and emotional feelings about. However, when controversial topics are discussed, we must remember that intellectual pluralism and academic freedom are core to the mission of higher education. Remembering this allows for respectful discussions that is inclusive of a diversity of views.

Face Masks

You probably have an opinion on the effectiveness and use of masks to limit the spread of COVID-19 but wearing a face mask is not required in Georgia State classrooms. If you choose not to wear a face mask there is no penalty, and students should not engage in any type of disruptive behavior towards those who have made a different choice about wearing a mask.

Diversity, Inclusivity, and Respect Statement

It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of all diversity including gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your comments (in the discussion posts and in person) related to the class and content will be encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups.

Political Science Vision, Mission & Values

Vision: The vision of GSU's Political Science Department is to ...

1. Investigate the most crucial questions in politics and society.
2. Engage and inspire students.
3. Foster global understanding and civic participation.
4. Strengthen a culture of respect, inclusion, and collaboration.

Mission: The mission of GSU's Political Science Department is to ...

1. Advance knowledge through research, teaching, and public outreach.
2. Promote diverse research agendas and support research excellence.
3. Create inclusive, respectful, challenging, and collaborative learning environments.
4. Foster engaged citizenship.

We accomplish our mission by:

1. Engaging in and disseminating high quality research.
2. Encouraging faculty and student collaboration.
3. Providing inclusive and excellent educational opportunities to students of diverse backgrounds.
4. Educating students so that they are highly qualified for their chosen careers.

FERPA Statement

In keeping with USG and university policy, this course website will make every effort to maintain the privacy and accuracy of your personal information. Specifically, unless otherwise noted, it will not actively share personal information gathered from the site with anyone except university employees whose responsibilities require access to said records. However, some information collected from the site may be subject to the Georgia Open Records Act. This means that while we do not actively share information, in some cases we may be compelled by law to release information gathered from the site. Also, the site will be managed in compliance with the Family Educational Rights and Privacy Act (FERPA), which prohibits the release of education records without student permission. For more details on FERPA, [click here](#).

Academic Honesty

Georgia State University has clearly articulated its policies governing academic integrity and students are encouraged to carefully review the Policy on Academic Honesty available through the Dean of Students Office. Any deviation from these expectations will result in academic penalties, and the potential for disciplinary action. At a minimum, any violation will result in a grade of zero (0) on the specific assignment involved. The area of greatest potential risk for intentional and inadvertent academic dishonesty is plagiarism. Plagiarism includes, but is not limited to, paraphrasing or directly quoting the published or unpublished work of another individual without full and clear acknowledgment in the form of a citation. The University's Policy on Academic Honesty is [available here](#).

Prohibition on Posting Instructor-Generated Materials

The selling, sharing, publishing, presenting, or distributing of instructor-prepared course lecture notes, videos, audio recordings, or any other instructor-produced materials from any course for any commercial purpose is strictly prohibited unless explicit written permission is granted in advance by the course instructor. This includes posting any materials on websites such as Chegg, Course Hero, OneClass, Stuvia, StuDocu and other similar sites. Unauthorized sale or commercial distribution of such material is a violation of the instructor's intellectual property and the privacy rights of students attending the class, and is prohibited.

Special Needs

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. Students who wish to request accommodation for a disability may do so via the Access and Accommodations Center (AACE) at <https://access.gsu.edu/>. Students may only be accommodated upon issuance of a signed Accommodation Plan by the AACE Center ([see here for more information](#)) and are responsible for providing a copy of that plan to instructors of all classes in which accommodations are sought.

Basic Needs Statement

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable us to provide resources that we may possess. The [Embark program at GSU](#) provides resources for students facing homelessness and [Panther's Pantry](#) provides resources for students facing food insecurity.

Sexual Harassment

In instances of sexual misconduct, the present instructor(s) and teaching assistants, are designated as Responsible Employees who are required to share with administrative officials all reports of sexual misconduct for university review. If you wish to disclose an incident of sexual misconduct confidentially, there are options on campus for you do so. For more information on this policy, please refer to the Sexual Misconduct Policy which is included in the [Georgia State University Student Code of Conduct](#).

End of Course Evaluations

Your constructive assessment of this course plays an indispensable role in shaping education at Georgia State. Upon completing the course, please take time to fill out the online course evaluation.

Disclaimer

The course syllabus provides a general plan for the course; deviations may be necessary.

Course Outline

• Week 1: Introduction to Course and Matrix/Linear Algebra Review

- Required Readings:
 - * None
- Recommended Readings:
 - * Gill (2006), especially chapters 1, 3, 4, and 5.
 - * Hagel, Timothy M. 1995. *Basic Math for Social Scientists: Concepts*. Thousand Oaks, CA: Sage.
 - * Fox, John. 2008. *A Mathematical Primer for Social Statistics*. Thousand Oaks, CA: Sage.
- Assignments:
 - * None

• Week 2: Review of the Linear Regression Model

- Required Readings:
 - * Long, Chapters 1-2 (pp. 1-24)
 - * King, Gary. 1986. “How Not to Lie with Statistics: Avoiding Common Mistakes in Quantitative Political Science.” *American Journal of Political Science* 30 (3): 666-87. (skim section “Regression on Residuals”).
- Required Lectures:
 - * OLS: Intro, and Assumptions 1,2 3, and 4.
- Recommended Readings:
 - * Kmenta, Chs. 7-8; Kennedy, Ch. 3, 6-11; Fox Ch 5-6; or equivalent in another text on linear models or econometrics
- Assignments:
 - * **OLS Problem Set Distributed**

• Week 3: Overview of the Maximum Likelihood Estimator

- Required Readings:
 - * Long, Chapter 2 (pp. 25-33)

- Required Lectures:
 - * MLE: Intro, Distributions, Basic Mechanics, Finding a Solution
- Recommended Readings:
 - * King (1989), Chapters 1-4
 - * Ellison (1993), Chapters 1-2
- Assignments:
 - * **OLS Problem Set Due**
- **Week 4: Binary Response Models**
 - Required Readings:
 - * Long Chapters 3-4
 - * George, Tracey E. and Lee Epstein. 1992. “On the Nature of Supreme Court Decision Making.” *American Political Science Review* 86(2): 323-337.
 - * Rainey, Carlisle and Kelly McCaskey. 2021. “Estimating logit models with small samples.” *Political Science Research and Methods*: 1-16. doi:10.1017/psrm.2021.9.
 - Required Lectures:
 - * Logit: Logit, Probit, Goodness of Fit, Model Compare
 - Recommended Readings:
 - * King (1989), Chapter 5
 - * Hagle, Timothy M., and Glenn E. Mitchell. 1992. “Goodness of Fit Measures for Probit and Logit.” *American Journal of Political Science* 36(August):762-84.
 - * King, Gary and Langche Zeng. 2001. “Logistic Regression in Rare Events Data.” *Political Analysis* 9: 137-63.
 - Assignments:
 - * **Research Paper Proposal Assigned**
 - * **Problem Set Logit distributed**
- **Week 5: Reliability and Validity, Latent Variables, and Factor Analysis**
 - Required Readings:
 - * Adcock, Robert and David Collier. 2001. “Measurement Validity: A Shared Standard for Qualitative and Quantitative Research.” *The American Political Science Review* 95(3): 529-546.
 - Required Lectures:
 - * Measure: Intro, Error, Latent Variables, Factor Analysis
 - Recommended Readings:
 - * Kim & Mueller
 - * Berry, William D., Evan J. Ringquist, Richard C. Fording, and Russell L. Hanson. 1998. “Measuring citizen and government ideology in the American states, 1960-93.” *American Journal of Political Science* 42(Jan.): 327-348.
 - * Bollen, Kenneth A.. 2002 “Latent variables in psychology and the social sciences.” *Annual Review of Psychology* 53(1): 605-634.
 - Assignments:
 - * **Problem Set Logit due**
 - * **In class: Workflow in Quantitative Methods**

- **Week 6: Interpreting and Presenting Results; Issues with Interaction Terms**

- Required Readings:
 - * Gelman, Andrew. 2011. “Why Tables are Really Much Better Than Graphs.” *Journal of Computational and Graphical Statistics* 20(1): 3-7.
 - * Kestellec, Jonathan P. and Eduardo L. Leoni. 2007. “Using Graphs Instead of Tables in Political Science.” *Perspectives on Politics* 5(Dec.): 755-771.
 - * Brambor, Thomas, William Roberts Clark, and Matt Golder. 2006. “Understanding Interaction Models: Improving Empirical Analyses.” *Political Analysis* 14: 63-82. [See also the website set up by Brambor, Clark, and Golder to accompany their article, available at <http://homepages.nyu.edu/~mrg217/interaction.html>.]
- Required Lectures:
 - * Substance: Intro, Graph, Interact, and Predicted Probs
- Recommended Readings:
 - * Gelman, Andrew, Cristian Pasarica, and Rahul Dodhia. 2002. Let’s Practice What We Preach: Turning Tables into Graphs. *American Statistician* 56 (2): 121-30.
 - * Epstein, Lee, Andrew D. Martin, and Matthew M. Schneider. 2006. “On the Effective Communication of the Results of Empirical Studies, Part I.” *Vanderbilt Law Review* 59: 1811-1871.
 - * Epstein, Lee, Andrew D. Martin, and Christina L. Boyd. 2007. “On the Effective Communication of the Results of Empirical Studies, Part II.” *Vanderbilt Law Review* 60: 101-146.
 - * King, Gary, Michael Tomz, and Jason Wittenberg. 2000. “Making the Most of Statistical Analyses: Improving Interpretation and Prediction.” *American Journal of Political Science* 44 (April): 347-361.
 - * Williams, Richard. 2012. “Using the Margins Command to Estimate and Interpret Adjusted Predictions and Marginal Effects.” *The Stata Journal* 12(2): 308–331.
- Assignments:
 - * **Research Paper Proposal Due**

- **Week 7: Ordinal Models**

- Required Readings:
 - * Long Chapter 5
 - * Hartlyn, Jonathan, Jennifer McCoy, Thomas M. Mustillo. 2008. “Electoral Governance Matters: Explaining the Quality of Elections in Contemporary Latin America.” *Comparative Political Studies* 41(1):73-98.
- Required Lectures:
 - * Ordinal: Intro, Mechanics, Stata (optional)
- Recommended Readings:
 - * Winship, Christopher and Robert D. Mare. 1984. “Regression Models with Ordinal Variables.” *American Sociological Review* 49 (August): 512-525.
- Assignments:
 - * **Problem Set Ologit distributed**

- **Week 8: Multinomial Models**

- Required Readings:

- * Long Chapter 6
- * Carlin, Ryan E. 2006. "The Decline of Citizen Participation in Electoral Politics in Post-authoritarian Chile." *Democratization* 13(4): 632–651. (**Especially endnote 69**).
- * Stanley, Ben, Radosław Markowski, and Mikołaj Cześnik. 2021. "Marginalization, not mainstreaming: Explaining the failure of fringe parties in Poland." *Party Politics* 27(1): 46-57.
- Required Lectures:
 - * None
- Recommended Readings:
 - * Dow, Jay K., and James W. Endersby. 2004. "Multinomial Probit and Multinomial Logit: A Comparison of Choice Models for Voting Research." *Electoral Studies* 23(March):107-22.
- Assignments:
 - * **Problem Set Ologit due**
- **Week 9: Survival/Duration/Event History Models:**
 - Required Readings:
 - * Box-Steffensmeier, Janet M., and Bradford S. Jones. 1997. "Time is of the Essence: Event History Models in Political Science." *American Journal of Political Science* 41(Oct.): 1414-1461.
 - * Box-Steffensmeier, Janet M., and Christopher J. W. Zorn. 2001. "Duration Models and Proportional Hazards in Political Science." *American Journal of Political Science* 45(Oct.): 972-988.
 - * Box-Steffensmeier, Janet M., and Christopher Zorn. 2002. "Duration Models for Repeated Events." *Journal of Politics* 64(Nov.): 1069-1094.
 - Required Lectures:
 - * Survival: Intro, Basics, Cox, Parametric
 - Recommended Readings:
 - * Box-Steffensmeier and Jones. 2004. *Event History Analysis* Thousand Oaks, CA: Sage.
 - * Bennett, D. Scott. 1999. "Parametric Models, Duration Dependence, and Time-Varying Data Revisited." *American Journal of Political Science* 43(Jan.): 256-270.
 - * Box-Steffensmeier, Janet M., and Suzanna De Boef. 2006. "Repeated Events Survival Models: The Conditional Frailty Model." *Statistics in Medicine* 25: 3518-3533.
 - * Gordon, Sanford C. 2002. "Stochastic Dependence in Competing Risks." *American Journal of Political Science* 46(Jan.): 200-217.
 - * Zorn, Christopher J. W. 2000. "Modeling Duration Dependence." *Political Analysis* 8(3): 367-380.
 - Assignments:
 - * **Problem Set Survival distributed**
- **Week 10: Count Models**
 - Required Readings:
 - * Long Chapter 8
 - * King, Gary. 1988. "Statistical Models for Political Science Event Counts: Bias in Conventional Procedures and Evidence for the Exponential Poisson Regression Model." *American Journal of Political Science* 32(3): 838-63.

- Required Lectures:
 - * Count: Intro, Poisson, NB, Zero
- Assignments:
 - * **Problem Set Survival due**
- **Week 11: Multilevel Models**
 - Required Readings:
 - * “Steenbergen, Marco and Bradford D. Jones. 2002. “Modeling Multilevel Data Structures”. *American Journal of Political Science* 46(1): 218-237.
 - * Franzese, Robert J., Jr. 2005. “Empirical Strategies for Various Manifestations of Multilevel Data” *Political Analysis* 13(Autumn): 430-446.
 - Required Lectures:
 - * Nested: Intro, FERE, Clustering, Multilevel,
 - Recommended Readings:
 - * Gelman and Hill (2006), Chapters 11-15
 - * Achen, Christopher H. 2005. “Two-Step Hierarchical Estimation: Beyond Regression Analysis” *Political Analysis* 13(Autumn): 447-456.
 - * Bowers, Jake and Katherine W. Drake. 2005. “EDA for HLM: Visualization when Probabilistic Inference Fails.” *Political Analysis* 13(Autumn): 301-326.
 - * Primo, David M., Matthew L. Jacobsmeier, and Jeffrey Milyo. 2007. “Estimating the Impact of State Policies and Institutions with Mixed-Level Data.” *State Politics & Policy Quarterly* 7(Winter): 446-459.
 - Assignments Due:
 - * **Paper Draft Due**
 - * **Reviews Assigned via email**
- **Week 12: What Are We Doing Wrong and How Do We Fix It?**
 - Required Readings:
 - * Schrodtt, Philip A. 2014. “Seven Deadly Sins of Contemporary Quantitative Political Analysis.” *Journal of Peace Research* 51(Mar.): 287-300.
 - * Achen, Christopher H. 2005. “Let’s Put Garbage-Can Regressions and Garbage-Can Probits Where They Belong.” *Conflict Management and Peace Science* 22 (Winter): 327-339.
 - * Ward, Michael D., Brian D. Greenhill, and Kristen Bakke. 2022. “The perils of policy by p-value: Predicting civil conflicts.” *Journal of Peace Research* 47(4) 363-375.
 - * Gill, Jeff. 1999. “The Insignificance of Null Hypothesis Significance Testing.” *Political Research Quarterly* 52:(September): 647-674.
 - * Clarke, Kevin A. 2005. “The Phantom Menace: Omitted Variable Bias in Econometric Research.” *Conflict Management and Peace Science* 22 (Winter): 341-352.
 - Recommended Readings:
 - * Achen, Christopher H. 2002. “An Agenda for the New Political Methodology: Microfoundations and ART.” *Annual Review of Political Science* 5: 423-450.
 - * Bueno De Mesquita, Bruce. 2002. “Domestic politics and international relations.” *International Studies Quarterly* 46: 1-9.
 - * Ray, James Lee. 2003. “Explaining Interstate Conflict and War: What Should Be Controlled For?” *Conflict Management and Peace Science* 20(2): 1-31.

- * Granato, Jim and Frank Scioli. 2004. "Puzzles, Proverbs, and Omega Matrices: The Scientific and Social Significance of Empirical Implications of Theoretical Models (EITM)." *Perspectives on Politics* 2(2): 313-323.

– Assignments:

- * **Reviews Due**

• **Week 13: Student Presentations I**

– Required Readings:

- * None

– Recommended Readings:

- * None

– Assignments:

- * None

• **Week 14: No Class**

• **Week 15: Student Presentations II**

– Required Readings:

- * None

– Recommended Readings:

- * None

– Assignments:

- * **Paper and Memo Due**
- * **Final Exam distributed, Saturday Dec. 2, 2023, 7am**
- * **Final Exam due, Tuesday, Dec. 5, 2023 8:00pm**