In Political Science 605 or its equivalent, you examined empirical models based on the principle of ordinary least squares. It made sense to begin your formal training in quantitative methodology this way, since OLS regression analyses are exceedingly common throughout the subfields of the discipline. Yet many variables of interest to us – voting choices in the last presidential election, the number of women serving in the state legislature, the length of time that countries respect a peace treaty, ideological attitudes measured on a three-point ordinal scale, to name only a few – cannot be modeled effectively via ordinary least squares. In this seminar, we will explore alternative frameworks for regression modeling when dependent variables are categorical or limited.

As with POL 605, we will pay particularly close attention to issues concerning causality and substantive interpretation. How do we know a cause when we see one? Where do regression coefficients come from, and what do they mean? How can we know whether the assumptions of our analysis are plausible in a particular research context? Our seminar will be conducted as a workshop. I encourage students to use this course to build on prior research from POL 630, 631, 610, 611, 620, or any other class. The ultimate goal is to end up with a paper that is suitable for presentation at a professional conference and – knock on wood – publishable in a peer-reviewed journal.

Welcome to the class – I hope you have an enjoyable semester!

Reading Materials:

- Many articles and book chapters available on-line or at the reserve desk at HSSE.

Course Requirements:

- Frequent homework assignments and active seminar participation (collectively worth 30% of your seminar grade).
- Open-note / open-book in-class homestretch examination (30%), April 6.
- Final research project (40%) that explores one or more hypotheses using the techniques we cover in POL 606, due on Monday, May 4.
Schedule of Topics:

[Note: The best kind of teaching involves showing – not just telling. I will bring lots of application examples to class each week, and I encourage you to share your own “research in progress” with the other seminar members. This will make our sessions more engaging and informative, but it could also throw off our timetable. Unless you hear otherwise, we will keep to this schedule of topics. Please read the assigned material in advance of the seminar meeting.]

January 12. Introduction to the course and a tribute to Groundhog Day: Let’s relive high school and college by discussing $e$ and $\ln$. This session, along with the refresher seminar next week, will prepare us to consider what it means to maximize a log-likelihood function.

January 21. No class meeting in recognition of the MLK holiday. Is it possible to reschedule to Tues or Wed evening? If so, we will continue our tribute to “Groundhog Day” by reviewing the rudiments of functions, limits, derivatives, maxima and minima.

- Fox, Chapter 2
- Optional reading for students who would like a more extensive – but approachable – treatment of basic calculus: Daniel Kleppner and Norman Ramsey, *Quick Calculus: A Short Manual of Self Instruction*, Wiley and Sons, 1965, on reserve at HSSE.

January 26 – February 2 (which is the real Groundhog Day). Review of OLS regression models for continuous dependent variables: Do you remember those key assumptions for sound causal inference? Following this discussion, we will discuss the logic of maximum likelihood estimation.

- Long, Chapters 1-2
- Fox, pp. 131-143.


- Long, Chapters 3-4

Some examples:


February 23 – March 2. Models for ordered outcomes: ordered logit and ordered probit
• Long, Chapter 5

Some examples:

March 9. What should we do if our dependent variable is a set of unordered outcomes? A look at multinomial logistic regression.
• Long, Chapter 6

Some examples:

• Long, Chapter 8

Some examples:
• Travis N. Ridout and Glen R. Smith, “Free Advertising: How the Media Amplify Campaign Messages,” *Political Research Quarterly* (2008), 598-608

April 6. We have learned so much. Isn’t it time for a homestretch examination?

April 13. One-on-one consultation: What are you working on for your final project?

April 20. Presentation of student projects: Circulate first drafts if available, but preliminary findings in memo form will suffice.

April 27. Progress report to the seminar: What have you done lately? Is the work nearly ready for prime time?
Appendix: Course Policies

Adapted from the template recommended by the
Purdue University Center for Instructional Excellence

- During class, please turn off any device that beeps, rattles, buzzes, lights up, or does anything else that could be distracting. In a typical seminar meeting, we will take a short break after the first 60-75 minutes. This will allow you to check messages or take care of other business.

- I often work in my office outside of the regular office hours listed on the first page of this syllabus. In general, if the office door is open, I am fair game for colleagues, students, and other visitors. If the door is closed, that means that I am working on research projects or preparing for class meetings.

- When students contact me by email about a course assignment, an activity, or to set up an appointment, I am usually able to respond within twenty-four hours.

- Final grades for the seminar will include a “plus” or “minus” when appropriate. “Incompletes” can be given only under truly exceptional circumstances and must be arranged well before final grades are submitted.

- The leaders that political scientists study might not always display the highest ethical standards in the pursuit of power. Henry Kissinger once remarked that “90% of all politicians give the other 10% a bad reputation.” In contrast, we academics are duty bound to go about our business with unfailing honesty and integrity. As a reminder, here is the university policy on scholarly ethics –

Purdue prohibits "dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty." [Part 5, Section III-B-2-a, University Regulations] Furthermore, the University Senate has stipulated that "the commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest." [University Senate Document 72-18, December 15, 1972] Any violation of this university policy will result in an “F” for the course.

- The following policy on attendance will also apply in this course –

Students are expected to be present for every meeting of the classes in which they are enrolled. Only the instructor can excuse a student from a course requirement or responsibility. When conflicts or absences can be anticipated, such as for many University sponsored activities and religious observations, the student should inform the instructor of the situation as far in advance as possible. For unanticipated or emergency absences when advance notification to an instructor is not possible, the student should contact the instructor as soon as possible by email, or by contacting the main office of the Department of Political Science. When the student is unable to make direct contact with the instructor and is unable to leave word with the instructor’s department because of circumstances beyond the student’s control, and in cases of bereavement, the student or the student’s representative should contact the Office of the Dean of Students.

- And here is another policy that hopefully will not be relevant this semester --

Purdue University recognizes that a time of bereavement is very difficult for a student. The University therefore provides the following rights to students facing the loss of a
family member through the Grief Absence Policy for Students (GAPS). GAPS Policy: Students will be excused for funeral leave and given the opportunity to earn equivalent credit and to demonstrate evidence of meeting the learning outcomes for missed assignments or assessments in the event of the death of a member of the student’s family.

- This is the policy on violent behavior --

Purdue University is committed to providing a safe and secure campus environment for members of the university community. Purdue strives to create an educational environment for students and a work environment for employees that promote educational and career goals. Violent Behavior impedes such goals. Therefore, Violent Behavior is prohibited in or on any University Facility or while participating in any university activity.

- Regarding students with disabilities, here is our policy --

Purdue University is required to respond to the needs of the students with disabilities as outlined in both the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 through the provision of auxiliary aids and services that allow a student with a disability to fully access and participate in the programs, services, and activities at Purdue University. If you have a disability that requires special academic accommodation, please make an appointment to speak with me within the first two (2) weeks of the semester in order to discuss any adjustments. It is important that we talk about this at the beginning of the semester. It is the student’s responsibility to notify the Disability Resource Center (http://www.purdue.edu/drc) of an impairment/condition that may require accommodations and/or classroom modifications.

- Concerning emergencies, this is the policy we will follow --

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor’s control. Relevant changes to this course can be obtained by contacting the instructor via email or phone. You are expected to read your @purdue.edu email on a frequent basis.

- Finally, a nondiscrimination policy --

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life.

Purdue University prohibits discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, genetic information, marital status, parental status, sexual orientation, gender identity and expression, disability, or status as a veteran. The University will conduct its programs, services and activities consistent with applicable federal, state and local laws, regulations and orders and in conformance with the procedures and limitations as set forth in Executive Memorandum No. D-1, which provides specific contractual rights and remedies. Any student who believes he or she has been discriminated against may visit www.purdue.edu/report-hate to submit a complaint to the Office of Institutional Equity. Information may be reported anonymously.