

POLS 8501	Advanced Quant. Methods I	Fall 2020
T 3:55-6:40	Baldwin 101D	Prerequisites: POLS 7012/7014
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Office Hrs: By appointment	Office: 319 IA Building	

Course Description

This course presents students with an overview of regression analysis as it is commonly used in political science. The emphasis of the course is on models where the traditional assumptions of ordinary least-squares regression are violated because the dependent variable is non-continuous. The course focuses on maximum likelihood estimation of various models for discrete response variables, including binary, ordered, and nominal variables, event counts, and durations. Despite the course title, the models covered are among the most widely used in political science today. It is very difficult to produce or consume quantitative research in political science without some familiarity with these models. While course readings present the models as clearly as possible, much of the material in this course is technical and will require several readings (and hands-on experience) to fully comprehend. Because reading books and articles and attending lectures is not sufficient to learn how to perform statistical analysis competently, students will be required to complete lab exercises during most weeks. Special attention will be given to estimation and post-estimation analysis using the statistical software program R. Students will apply various models to different sets of data in a series of computer lab assignments, and to data relevant to their own area of specialization in a final paper to be submitted at the end of the semester.

Required Texts

Ward, Michael D. and John Ahlquist. 2018. *Maximum Likelihood for Social Science*. New York: Cambridge University Press.

Long, Scott. 1997. *Regression Models for Categorical and Limited Dependent Variables*. Thousand Oaks, CA: Sage Publications. (I will provide an electronic copy)

Grades

Your grades will be based on lab assignments, a final paper, and class attendance/participation. Your final grade will be determined as follows:

Lab assignments (8): 40%

Final paper: 60%

Grade Distribution:

90-100: A	80-89: B	70-79: C
60-69: D	59 and below: F	

Lab Exercises/Homework Assignments

Students will complete 8 lab assignments throughout the semester. The assignments will require students to use the statistical software program R, which is open-source and completely free. We will spend a lot of time in class going through example code, and I will be available via Zoom (and email) to answer any questions you have about assignments. Assignments are due Friday by 5 p.m. the week they are assigned.

Final Paper

For your final paper, you are expected to write a paper that you could present (without embarrassment) at a professional conference. The paper can be on any topic in political science but must include a *complete* analysis using one of the techniques covered in this course. This means your research question must be amenable to off-the-shelf data (that you could download right now), assuming you have not collected relevant data yourself before the course begins. For this project you are strongly encouraged to extend/finish seminar papers or other projects you have already begun. You may also use a paper you are writing for another seminar in which you are currently enrolled, if that is feasible.

There are a few dates you need to remember with respect to the final paper. You must submit to me via email a 1-2 page paper proposal by Friday, September 25th. The proposal should outline your research question, argument, and the analysis you plan to conduct. I will then set up individual meetings with each of you to discuss your paper proposals. By Friday, October 30th you must submit a rough draft of the *research design* portion of your paper, meaning everything except the analysis. Your research design draft should include a description of the data you plan to analyze. On November 24th I will again meet with each of you individually to discuss progress on your final paper and any problems you might be encountering with your analysis. All analysis must be conducted in R, and students must submit replication files (a script and a data file) along with their papers. Final papers are due December 11 by 5 p.m.

Course format

I will emphasize that *no one is required to attend class*. Students may access and complete all components of this course online. Note that after Thanksgiving break all class meetings will be conducted online. Students who choose to come to class must wear a face covering at all times and remain at least 6 feet away from everyone else at all times. See the “Covid-19 Information for Students” section at the end of the syllabus.

Course Website and Email

Can be accessed through www.elc.uga.edu. You will need to check this site regularly for any syllabus updates or for posted readings. Announcements may also be sent out via email. It is your responsibility to check ELC for syllabus updates.

Syllabus Change Policy

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

Students with Disabilities

Students with disabilities who require reasonable accommodations in order to participate in course activities or meet course requirements should contact the instructor or designate during regular office hours or by appointment.

University Honor Code/Academic Honesty Policy

As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, "A Culture of Honesty," and the Student Honor Code. All academic work must meet the standards described in "A Culture of Honesty" found at www.uga.edu/honesty. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

Withdrawal Policy

Students who withdraw from the class before the withdrawal deadline are assigned a grade based on their performance (pass/fail) in the class up the point of withdrawal. This means that students who are failing will be assigned a "WF" grade even if they withdraw before the deadline. Students who withdraw from the class after the withdrawal deadline are automatically assigned a "WF" grade upon withdrawal.

Course Schedule

Aug 25: Course overview, introduction to R

No reading.

Sep 1: Data management and basic statistics in R

No reading.

Lab 1 due Friday, Sep 4.

Sep 8: Linear model review

Long, p. 1–25.

Lab 2 due Friday, Sep 11.

Sep 15: Maximum likelihood estimation

Ward and Ahlquist, ch. 1–2.

Long, p. 25–33, ch. 4.

Lab 3 due Friday, Sep 18.

Sep 22: Models for binary response variables

Ward and Ahlquist, ch. 3.

Long, ch. 3.

Paper proposals due Friday, Sep 25.

Sep 29: Model evaluation and interpretation in R

Ward and Ahlquist, ch. 6–7.

Lab 4 due Friday, Oct 2.

Oct 6: Models for ordered response variables I

Ward and Ahlquist, ch. 8.

Long, ch. 5.

Oct 13: Models for ordered response variables II

Ward and Ahlquist, ch. 8.

Long, ch. 5.

Lab 5 due Friday, Oct 16.

Oct 20: Models for nominal/unordered response variables

Ward and Ahlquist, ch. 9.

Long, ch. 6.

Lab 6 due Friday, Oct 23.

Oct 27: Models for event counts I

Ward and Ahlquist, ch. 10.

Long, ch. 8.

Research design draft due Friday, Oct 30.

Nov 3: Models for event counts II

Ward and Ahlquist, ch. 10.

Long, ch. 8.

Lab 7 due Friday, Nov 6.

Nov 10: Models for durations I

Ward and Ahlquist, ch. 11.

Nov 17: Models for durations II

Ward and Ahlquist, ch. 11.

Lab 8 due Friday, Nov 20.

Nov 24: Final paper discussions

No reading.

Dec 1: Model fit, validation, and prediction

Ward and Ahlquist, ch. 5.

Ward, Greenhill, and Bakke. 2010. "The Perils of Policy by p-value." *Journal of Peace Research* 47(4): 363–375

Dec 8: Analyzing grouped data

Green, Kim, and Yoon. 2001. "Dirty Pool." *International Organization* 55(2): 441–468

Clark and Linzer. 2015. "Should I Use Fixed or Random Effects?" *Political Science Research and Methods* 3(2): 399–408

FINAL PAPER DUE: Friday, Dec 11, 5 p.m.

COVID-19 Information for Students

Face Coverings

Effective July 15, 2020, the University of Georgia (along with all University System of Georgia (USG) institutions) requires all faculty, staff, students and visitors to wear an appropriate face covering while inside campus facilities/buildings where six feet social distancing may not always be possible. Face covering use is in addition to and is not a substitute for social distancing. Anyone not using a face covering when required will be asked to wear one or must leave the area. Reasonable accommodations may be made for those who are unable to wear a face covering for documented health reasons. Students seeking an accommodation related to face coverings should contact Disability Services at <https://drc.uga.edu/>.

DawgCheck

Please perform a quick symptom check each weekday on DawgCheck on the UGA app or website—whether you feel sick or not. It will help health providers monitor the health situation on campus: <https://dawgcheck.uga.edu/>

What do I do if I have symptoms?

Students showing symptoms should self-isolate and schedule an appointment with the University Health Center by calling 706-542-1162 (Monday-Friday, 8 a.m.-5 p.m.). Please DO NOT walk-in. For emergencies and after-hours care, see <https://www.uhs.uga.edu/info/emergencies>.

What do I do if I am notified that I have been exposed?

Students who learn they have been directly exposed to COVID-19 but are not showing symptoms should self-quarantine for 14 days consistent with Department of Public Health (DPH) and Centers for Disease Control and Prevention (CDC) guidelines. Please correspond with your instructor via email, with a cc: to Student Care & Outreach at sco@uga.edu, to coordinate continuing your coursework while self-quarantined. If you develop symptoms, you should contact the University Health Center to make an appointment to be tested. You should continue to monitor your symptoms daily on DawgCheck.

How do I get a test?

Students who are demonstrating symptoms of COVID-19 should call the University Health Center. UHC is offering testing by appointment for students; appointments may be booked by calling 706-542-1162.

UGA will also be recruiting asymptomatic students to participate in surveillance tests. Students living in residence halls, Greek housing and off-campus apartment complexes are encouraged to participate.

What do I do if I test positive?

Any student with a positive COVID-19 test is required to report the test in DawgCheck and should self-isolate immediately. Students should not attend classes in-person until the isolation period is completed. Once you report the positive test through DawgCheck, UGA Student Care and Outreach will follow up with you.