

Expectations

Graduate courses, especially graduate courses for research design and methods, are intended to lay the foundation for your future as a researcher. Each one of you have elected to be here and to pursue a graduate degree, so it is to your benefit to attend class, do the outside readings, complete the homework assignments, and, most importantly, *come to class prepared to discuss the material*. Graduate courses are built around an exchange of ideas, so come prepared with your ideas! I refuse to enable anyone to actively seek out a “C” grade in this class, and if you plagiarize any portion of any assignment (including plagiarizing a fellow student’s answers), it’s an automatic zero.

I also expect that you make a reasonable effort to maintain classroom decorum by refraining from reading newspapers, doing crossword puzzles, sleeping, texting, or playing on Facebook (or whatever social network/game/trend that I’m oblivious to). Please silence all cell phones. These ideas are formally outlined in the Auburn University Classroom Behavior policy: see tinyurl.com/au-st-pol for more details. Consistent with Auburn University policy, I encourage class attendance from all students.

Text

There is one required book for this class.

Gujarati, Damodar N. and Dawn C. Porter. 2009. *Basic Econometrics: Fifth Edition*. Boston: McGraw Hill.

There are two recommended books.

Kellstedt, Paul M. and Guy D. Whitten. 2013. *The Fundamentals of Political Science Research: Second Edition*. Cambridge: Cambridge University Press.

Kennedy, Peter. 2003. *A Guide to Econometrics: Fifth Edition*. Cambridge, MA: MIT Press.

These books are available at the Auburn University Bookstore, as well as the internet. There are multiple versions of all three; get a relatively recent one and match the chapters. I just listed the versions that I’ll be working from (i.e. the ones I have in my office). None of the versions listed are the most recent, so they should be somewhat inexpensive. I highly recommend owning them. Econometrics books are reference texts that you’ll revisit for the life of your career. There are other journal articles assigned some weeks. You should be able to find these with minimal effort, either by **googling** them or using the Auburn University Libraries. If you cannot find one of the articles, let me know, and I’ll make it available on **Canvas** or email.

You must obtain a copy of R (available from <https://cran.revolutionanalytics.com/>). You will probably hate, then maybe learn to love, using R. We will use it because it is (a) free and (b) flexible enough to test most theories of political science. You’re free to use another analysis software if you like. I’ll devote minimal in-class time to answering questions in other software programs. Full disclosure: the only other software I even have on my computer is **Stata**, so it will be difficult for

me to answer in-class questions on SAS, SPSS, or any other program. We will devote an extensive amount of class time to learning to use R effectively.

Assignments

The course is divided into the following components:

Class participation	10%
Homework assignments	30%
Midterm	25%
Final	35%
Total	100%

In order, those components are ...

Class participation: Do. The. Reading. It is literally that simple. Do the reading and come to class prepared to discuss that reading. I know it can feel weird to read a chapter of a methods textbook, but try to read for ideas instead of for statistical content. When I ask questions of the class, please answer the questions and contribute to the lecture. When you have questions, please ask them. Also, be prepared to be randomly called on to answer questions during lectures.

Midterm examination: this will be an in-class exam on October 14. It is meant to emulate, in part, the exam environment of the comprehensive exams in our department.

Final examination: this will be a take home exam. It will be an open-book exam. The only limitation is that you are not allowed to consult with your classmates on the exam. We will discuss final exam dates as the end of the semester approaches.

Makeups and Grades

Makeup assignments/examinations will only be offered to those with a University excused absence, which can be found at tinyurl.com/au-st-pol. It is your responsibility to ensure that your absence is covered by the University, and it is your responsibility to comply with all policies. These policies require that you notify me of your absence prior to the date of absence if such notification is feasible, but within one week from the missed class. Your makeup examination must be scheduled within two weeks of this notification (though I recommend much, much earlier). If I need additional information on your absence (doctor's notes, for instance), you must provide this additional documentation within one week of the last date of the absence. Note that this policy also allows for makeup examinations for reasons deemed appropriate by the instructor. If you do not have a University excused absence, and you are going to miss an examination, it is much easier for me to work with you if you notify me promptly, especially if you can provide some sort of documentation.

89.5-100:	A
79.5-89.49:	B
69.5-79.49:	C
59.5-69.49:	D
59.49↓:	F

I use the standard Auburn University grading scale. To maintain fairness, I do not change grades under any circumstances except when I make a mathematical error in computing your grade. There is no extra credit. All grades will be posted to Canvas.

Contacting Me

I'm in Haley every day, but especially during my listed office hours. I check my email very, very regularly. If you want to get in touch with me through email, I ask that you follow three guidelines when attempting to contact me. First: include the course number and section number [8010-001] in the subject of your email. Your email will almost certainly get lost in the abyss if it is missing this information. Second: wait at least 48 hours, not including weekends, to send a second email. I promise I will get to it, but it may not be immediate. Third: email me only from your Auburn University official email address. In the event that I need to contact you, it will almost certainly be at your @auburn.edu email address. You should check this email often!

Student Academic Honesty

Auburn University is a institution committed to integrity and honor. It is your job as a University citizen to uphold those values. I will not tolerate any cheating or plagiarism, broadly defined as using unauthorized aids during examinations or attempting to represent someone else's work as your own. You are not as sly as you think you are. With hundreds of heads facing forward, it is extremely easy to tell who is working alone and who is not. Be aware that academic dishonesty can lead directly to failing the course and being referred to the Academic Honesty Committee. Penalties include expulsion from Auburn, as per Chapter 1202 of Title XII. For additional information visit tinyurl.com/au-st-pol.

Emergency Contingency

If normal class is disrupted due to illness, emergency, or crisis situation, the syllabus and other course plans and assignments may be modified to allow completion of the course. If this occurs, an addendum to your syllabus and/or course assignments will replace the original materials.

Students with Disabilities

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. If you believe you have a disability requiring an accommodation, please electronically submit your approved accommodations through AU Access

and make an individual appointment with me during the first week of classes (or as soon as possible if accommodations are needed immediately). If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT).

Any requests or arrangements made with the instructor in person must be followed up with an official email request for documentation. If you believe you may need an accommodation, it is your responsibility to secure it before the first exam.

Copyrighted Materials

The lectures, presentations (including slides), readings, and exams for this course are copyrighted, so you do not have the right to copy and distribute them. This includes recording class lectures.

Course Outline

Week 1 (August 19): Hello! First Meeting!

Week 2 (August 26): Descriptive Statistics and Probability

- Nagler, Jonathan. 1995. "Coding Style and Good Computing Practices." *PS: Political Science and Politics* 28 (3): 488-492.
- Conditional probability. <https://www.mathsisfun.com/data/probability-events-conditional.html>
- Univariate statistics. *Kellstedt and Whitten*, Chapter 5.

Week 3 (September 2): No Class: Labor Day

Week 4 (September 9): Frequentist Statistics and the Central Limit Theorem

- The Central Limit Theorem. https://www.usablestats.com/lessons/central_limit
- The Central Limit Theorem and inference. *Kellstedt and Whitten*, Chapters 6 and 7.

September 9 (Monday): 15th Class Day (last day to drop with no grade assignment and tuition refund).

Week 5 (September 16): Bivariate Statistics and Introduction to Linear Regression

- Bivariate statistics. *Kellstedt and Whitten*, Chapter 7.
- Regression basics. *Gujarati and Porter*, Chapters 1-3.

Week 6 (September 23): Linear Regression and Inference about the Estimator

- *Gujarati and Porter*, Chapters 4-5.
- Bivariate statistics. *Kellstedt and Whitten*, Chapter 8.
- Gross, Justin H. 2015. "Testing What Matters (If You Must Test at All): A Context-Driven Approach to Substantive and Statistical Significance." *American Journal of Political Science* 59(3): 775-788.

Week 7 (September 30): Multivariate Regression

- *Gujarati and Porter*, Chapters 6-8.
- Bivariate statistics. *Kellstedt and Whitten*, Chapters 9-10.
- Gelman, Andrew and Hal Stern. 2006. "The Difference Between 'Significant' and 'Not Significant' is Not Itself Statistically Significant." *The American Statistician* 60 (4): 328-331.
- Achen, Christopher H. 2002. "Toward a New Political Methodology: Microfoundations and ART." *Annual Review of Political Science* 5: 423-450.

Week 8 (October 7): OLS Extension I: Collinearity, Leverage, and Influence

- *Gujarati and Porter*, Chapter 10.

Week 9 (October 14): Midterm Exam

October 17 (Thursday): 41st Class Day (student deadline for request to move finals to Associate Deans).

Week 10 (October 21): OLS Extension II: Homoscedasticity, Non-linearity, and Model Fit

- *Gujarati and Porter*, Chapter 11.
- White, Halbert. 1980. "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity." *Econometrica* 48(4): 817-838.

Week 11 (October 28): OLS Extension III: Categorical Predictors

- *Gujarati and Porter*, Chapter 9.

November 1 (Friday): Last day to withdraw with no grade penalty (W).

Week 12 (November 4): OLS Extension IV: Interactions

- Brambor, Thomas, William Clark, and Matt Golder. 2006. "Understanding Interaction Models: Improving Empirical Analysis." *Political Analysis* 14(1): 63-83.
- Berry, William D., Matt Golder, and Daniel Milton. 2012. "Improving Tests of Theories Positing Interaction." *The Journal of Politics* 74(3): 653-671.

Week 13 (November 11): General Extension: Fixed and Random Effects

- Bell, Andrew, and Kelvyn Jones. 2015. "Explaining Fixed Effects: Random Effects Modeling of Time-Series Cross-Sectional and Panel Data." *Political Science Research and Methods* 3(1): 133-153.

Week 14 (November 18): General Extension: Limited Dependent Variables and MLE

- *Gujarati and Porter*, Chapter 15.

- *Kellstedt and Whitten*, Chapter 11.
- Rainey, Carlisle. 2016. “Compression and Conditional Effects: A Product Term Is Essential When Using Logistic Regression to Test for Interaction.” *Political Science Research and Methods* 4(3 September): 621-639.

Week 14.5 (November 25): No Class (Thanksgiving Break)

Week 15 (December 2): General Extension: Basic Visualization, Resampling, and “Quantities of Interest”

- King, Gary, Michael Tomz, and Jason Wittenberg. 2000. “Making the Most of Statistical Analyses: Improving Interpretation and Presentation.” *American Journal of Political Science* 44(2): 345-355.