

**QUANTITATIVE RESEARCH METHODS I (POLS 7112)**  
**FALL 2020**  
**TUESDAYS 3:40-6:00PM**  
**ONLINE COURSE**  
**Professor Virginia Oliveros**

**Professor:** Virginia Oliveros

**Email:** [volivero@tulane.edu](mailto:volivero@tulane.edu)

**Office Hours:**

Mondays 10am-noon (let's use this one for homework assignments so you can join in groups)

Wednesdays 3pm-5pm (for everything else), and by appointment

**Appointments:** <https://virginiaoliveros.youcanbook.me>

**Zoom links:**

Office hours: <https://tulane.zoom.us/my/virginiaoliveros>

Class: <https://tulane.zoom.us/j/94965757713>

## **COURSE DESCRIPTION**

This course provides an introduction to statistics for graduate students in political science. No previous statistical courses are necessary to succeed in the course as long as students work diligently throughout the semester. After a brief revision of the essentials of research design, the emphasis is on how to use and interpret statistics in applied work. By the end of the semester, students will (a) have a better understanding of how to conduct empirical research in political science, (b) be able to use basic statistics in their own empirical work, (c) have basic proficiency with STATA, the most common statistical program used in political science, (d) be confident in engaging with political science work that uses statistics, and (e) be prepared to take more advanced courses in statistics.

## **REQUIRED BOOKS**

- Pollock III, Philip and Barry C. Edwards. 2020. *The Essentials of Political Analysis*. 6<sup>th</sup> Edition. Los Angeles: CQ Press (referred to as Pollock).
- King, Gary, Robert Keohane, and Sidney Verba. 1994. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton: Princeton University Press (referred to as KKV). Available online through the Tulane library.
- Pollock, Philip H. III. 2019. *A Stata Companion to Political Analysis*, 4th edition. Los Angeles: CQ Press.

You are also required to have *Stata* statistical software program on your computer. You can get it at <https://it.tulane.edu/appsanywhere>. Go to the link and follow the instructions. You will have to install an app first to access Stata. If you had any trouble with this, please get in touch with the IT support.

## REQUIREMENTS

Assignment	Date	Percent
Home-work	Weekly	30%
Exam 1	October 6	20%
Exam 2	November 24	20%
Paper proposal	September 29	5%
Final Paper	December 5	25%

### 1. HOME-WORK (30%)

You will have **weekly** assignments. Typically, assignments focus on completing the exercises in *The Stata Companion* and applying the same techniques to your research paper. They will be available at the end of class on Tuesday, and due on Canvas the following **Monday by 6pm**. They will be graded passed/failed. If you submit all assignments and show that you spend enough time and effort in each of them (even if not all your answers are right) you should get full credit. Home-work assignments are key for learning in this class. The only way to learn how to do research (and use STATA) is by doing it. Assignments, of course, will also prepare you for the exams and the paper. You may work with classmates on assignments (you are actually encouraged to do so!), but each student must complete and write up their own results. Please name your homework files [yourlastname].week#.

### 2. TWO EXAMS (20% EACH)

Exams are open-book but you may not collaborate with other students. Both exams will be take-home and you will have 48 hours to complete them. The homework assignments will be good preparation for the applied questions on the exams. Exams will also include theoretical questions.

### 3. PAPER (30%)

You will write a research paper on a topic of your choice that uses quantitative data. The final paper must include both appropriate graphs and at least one regression model (with different specifications and robustness checks). Students will hand in a two-page paper proposal (5%) on September 29. The two-pager should identify your research question and hypothesis (with some brief reference to the literature and/or data to justify it) and a description of the variables and data you intend to use to test your hypothesis. The final paper (25%) is due on December 5.

### FINAL PAPER GENERAL GUIDELINES (DETAILS WILL BE DISCUSSED IN CLASS)

*(Acknowledgements:* This assignment is modeled after one designed by Professor Kate Baldwin at Yale University)

For the final paper, you must:

- identify a research question
- develop a hypothesis
- find a data set that allows you to test the hypothesis AND
- analyze the data using graphs and at least one regression model (with different specifications and robustness checks)

The final paper should be 8-10 double-spaced pages, excluding the bibliography, tables, and figures. It should contain the following sections:

- Research Question and Hypothesis/Hypotheses (with minimal theory)
- Description of Data
- Description of Data Analysis Technique (and its appropriateness)
- Data Analysis
- Conclusion (and discussion of limitations of analysis/further steps)
- Bibliography
- Codebook (description of variables, wording question, etc.)
- Appendix with additional tables/robustness tests (if needed)

**Some suggestions of dataset you may use (many more available!):**

Afrobarometer Survey - <http://www.afrobarometer.org/>

ANES - <http://www.electionstudies.org/>

American Religious Data Archive - <http://www.thearda.com/>

Comparative Study of Electoral Systems (CSES) - <http://www.cses.org/>

Latin American Public Opinion Project (LAPOP) - <http://www.vanderbilt.edu/lapop/survey-data.php>

World Bank - <http://data.worldbank.org/>

World Values Survey - <http://www.worldvaluessurvey.org/>

Many more available here: <https://library.tulane.edu/resources/databases>

**CLASS POLICIES**

**Attendance (in the time of COVID):** Students are expected to attend all classes unless they are ill or prevented from attending by exceptional circumstances. Students who find it necessary to miss class are responsible for notifying me. Please, reach out to me. I am more than happy to work with you! This attendance requirement does not apply to students on time zones that make it impossible to attend. Classes will be recorded to share with students in this situation.

**Make-up Exams:** There will be no make-up exams unless you have a medical emergency.

**Late Policy:** All assignments are due by 6pm on Monday, unless otherwise instructed. Late assignments will not be accepted. Papers (and paper proposals) will be downgraded by one-third of a letter grade (e.g. A to A-) per day. I strongly encourage you to discuss any problems with me before the assignment is due.

**Grading:** This course will be grade according to the following scale:

A	>=93	B+	87-89	C+	77-79	D+	67-69	F
A-	90-92	B	83-86	C	73-76	D	63-66	59 &
		B-	80-82	C-	70-72	D-	60-62	below

**Recordings class sessions:** Classes will be recorded to accommodate students on different time zones. The recordings will be posted to Canvas. Students may not post a class recording elsewhere, either wholly or in part. Instructors may not use a class recording in another course or in a subsequent semester.

**Office Hours:** You are welcome to meet with me about the class, your research, or your professional development at any point during the semester. To set an appointment, please go to <https://virginiaoliveros.youcanbook.me>. You must do this at least 12 hours before you wish to meet with me. All meetings occur on <https://tulane.zoom.us/my/virginiaoliveros>

### **ADA/Accessibility Statement**

Tulane University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability, please let me know immediately so that we can privately discuss options. I will never ask for medical documentation from you to support potential accommodation needs. Instead, to establish reasonable accommodations, I may request that you register with the Goldman Center for Student Accessibility. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. **Goldman Center contact information:** [goldman@tulane.edu](mailto:goldman@tulane.edu); (504) 862-8433; [accessibility.tulane.edu](http://accessibility.tulane.edu).

### **Code of Academic Conduct**

The Code of Academic Conduct applies to all undergraduate students, full-time and part-time, in Tulane University. Tulane University expects and requires behavior compatible with its high standards of scholarship. By accepting admission to the university, a student accepts its regulations (i.e., Code of Academic Conduct and Code of Student Conduct) and acknowledges the right of the university to take disciplinary action, including suspension or expulsion, for conduct judged unsatisfactory or disruptive.

### **Religious accommodation policy**

Per Tulane's religious accommodation policy, I will make every reasonable effort to ensure that students are able to observe religious holidays without jeopardizing their ability to fulfill their academic obligations. Excused absences do not relieve the student from the responsibility for any course work required during the period of absence. Students should notify me within the first two weeks of the semester about their intent to observe any holidays that fall on a class day or on the day of the final exam.

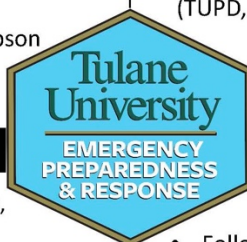
### **Respect for all people (Title IX)**

Tulane University recognizes the inherent dignity of all individuals and promotes respect for all people. As such, Tulane is committed to providing an environment free of all forms of discrimination including sexual and gender-based discrimination, harassment, and violence like sexual assault, intimate partner violence, and stalking. If you (or someone you know) has experienced or is experiencing these types of behaviors, know that you are not alone. Resources and support are available: you can learn more at [allin.tulane.edu](http://allin.tulane.edu). Any and all of your communications on these matters will be treated as either "Confidential" or "Private" as explained in the chart below. Please know that if you choose to confide in me I am mandated by the university to report to the Title IX Coordinator, as Tulane and I want to be sure you are connected with all the support the university can offer. You *do not* need to respond to outreach from the university if you do not want. You can also make a report yourself, including an anonymous report, through the form at [tulane.edu/concerns](http://tulane.edu/concerns).

Confidential	Private
<i>Except in extreme circumstances, involving imminent danger to one's self or others, nothing will be shared without your explicit permission.</i>	<i>Conversations are kept as confidential as possible, but information is shared with key staff members so the University can offer resources and accommodations and take action if necessary for safety reasons.</i>
<b>Counseling &amp; Psychological Services (CAPS)   (504) 314-2277 or The Line (24/7)   (504) 264-6074</b>	<b>Case Management &amp; Victim Support Services   (504) 314-2160 or <a href="mailto:srss@tulane.edu">srss@tulane.edu</a></b>
<b>Student Health Center   (504) 865-5255</b>	<b>Tulane University Police (TUPD)   Uptown - (504) 865-5911. Downtown – (504) 988-5531</b>
<b>Sexual Aggression Peer Hotline and Education (SAPHE)   (504) 654-9543</b>	<b>Title IX Coordinator   (504) 314-2160 or <a href="mailto:msmith76@tulane.edu">msmith76@tulane.edu</a></b>

### Emergency Preparedness & Response:

EMERGENCY NOTIFICATION SYSTEM: TU ALERT	RAVE GUARDIAN
<p>In the event of a campus emergency, Tulane University will notify students, faculty, and staff by email, text, and phone call. You were automatically enrolled in this system when you enrolled at the university.</p> <p>Check your contact information annually in Gibson Online to confirm its accuracy.</p>	<ul style="list-style-type: none"> <li>• Download the RAVE Guardian app from the App Store</li> <li>• Communicate with dispatchers silently by selecting “Submit Tip” feature in the app</li> <li>• Use the Safety Timer feature to alert your “guardian” (TUPD, family, friend) when travelling alone at night</li> </ul> <p>For more information, visit <a href="http://publicsafety.tulane.edu/rave-guardian">publicsafety.tulane.edu/rave-guardian</a></p>
<p><b>ACTIVE SHOOTER / VIOLENT ATTACKER</b></p> <ul style="list-style-type: none"> <li>• <b>RUN</b> – run away from or avoid the affected area, if possible</li> <li>• <b>HIDE</b> – go into the nearest room that can be locked, turn out the lights, silence cell phones, and remain hidden until all-clear message is given through TU ALERT</li> <li>• <b>FIGHT</b> – do not attempt this option, except as a last resort</li> </ul> <p>For more information on Active Shooter emergency procedures or to schedule a training, visit <a href="http://emergencyprep.tulane.edu">emergencyprep.tulane.edu</a></p>	<p><b>SEVERE WEATHER</b></p> <ul style="list-style-type: none"> <li>• Follow all TU Alerts and outdoor warning sirens</li> <li>• Seek shelter indoors until the severe weather threat has passed and an all-clear message is given</li> <li>• Do not attempt to travel outside if weather is severe</li> <li>• Monitor the Tulane Emergency website (<a href="http://tulane.edu/emergency/">tulane.edu/emergency/</a>) for university-wide closures during a severe weather event</li> </ul>



**FINAL NOTE: THIS SYLLABUS CAN BE AMENDED AT ANY TIME**

## COURSE OUTLINE

### PART I: DESIGNING EMPIRICAL RESEARCH

#### WEEK 1 [AUGUST 25]: THE SCIENCE IN SOCIAL SCIENCE / RESEARCH DESIGN

- *Designing Social Inquiry*, Chapter 1
- *The Essentials*, Introduction

#### Homework for Week 2:

- Install Stata on your computer from <https://it.tulane.edu/appsanywhere>
- *Stata Companion*: Read “Preface” and “Introduction Getting started” and follow the instructions to download the datasets on your computer.

#### WEEK 2 [SEPTEMBER 1]: QUESTIONS, HYPOTHESES, AND FOUNDATIONS OF RESEARCH DESIGN

- *Designing Social Inquiry*, Chapters 2 (“Descriptive Inference”) & Chapter 4 (“Determining What to Observe”)
- *The Essentials*, Chapter 3 (up to “Common Mistakes”, p. 85)
- *Stata Companion*, Chapter 1 (we will go over some of the basics in class)

#### Homework for Week 3:

- *Stata Companion*, Chapter 1 exercises
- Start working on your topic/question for the research paper and looking for an appropriate data set. Email me or set an appointment to discuss before next class.

#### WEEK 3 [SEPTEMBER 8]: CONCEPTS, VARIABLES, AND MEASUREMENT

Concepts, operationalization, measurement error, validity, reliability, variables, levels of measurement, describing and transforming variables

- *The Essentials*, Chapters 1 & 2
- *Stata Companion*, Chapter 2

#### Homework for Week 4:

- *Stata Companion*, Chapter 2 exercises (TBA, based on how far we get in class). Create a .do file containing your code and annotate it as necessary (this means someone else should be able to understand what’s going on). Please title the file [yourlastname].week5.do. Both exercises and dofiles are due on Canvas.
- Using the dataset for your research paper, produce a table with descriptive statistics with the variables relevant to your question and one graph showing the variation in your dependent variable.

#### WEEK 4 [SEPTEMBER 15]: CAUSAL INFERENCE

The fundamental problem of causal inference, causal effects, causal mechanisms

- *Designing Social Inquiry*, Chapter 3 (Causality and Causal Inference)
- Angrist, Joshua D., and Jörn-Steffen Pischke. 2009. *Mostly harmless econometrics: An empiricist's companion*. Princeton: Princeton university press. Chapter 2: The Experimental Ideal.
- Kastellec, Jonathan P. 2013. "Racial diversity and judicial influence on appellate courts." *American Journal of Political Science* 57(1): 167-183.
- <https://egap.org/resource/10-things-to-know-about-causal-inference/>

#### Homework for Week 5:

- Read and do the exercises on *Stata Companion*, Chapter 3.

#### WEEK 5 [SEPTEMBER 22]: FORMS OF DATA. OBSERVATIONAL DATA AND EXPERIMENTS

- *The Essentials*, Chapter 4 (up to page 114)
- Freedman et al. 2007. *Statistics*, 4th Edition. (Norton). Chapter 2: Observational Studies
- Dunning, Thad. 2012. *Natural experiments in the social sciences*. New York: Cambridge U Press. Chapter 1.
- Bertrand, Marianne and Sendhil Mullainathan. 2004. "Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination." *The American Economic Review*: 991-1013.
- <https://egap.org/resource/10-strategies-for-figuring-out-if-x-caused-y/>

#### Homework for Week 6:

- **PAPER PROPOSAL (2/3 PAGES) IS DUE**

### PART II: DESCRIPTION AND CONTROLLED COMPARISON

#### WEEK 6 [SEPTEMBER 29]: LOGIC OF CONTROL

Making comparisons, graphing relationships, describing patterns

- *The Essentials*, Chapter 3 (from page 85 till the end)
- *The Essentials*, Chapter 4 (from page 114 till the end)
- *Stata Companion*, Chapters 4

#### Homework for Week 7:

- *Stata Companion*, Chapter 4 exercises

#### WEEK 7 [OCTOBER 6]: MAKING CONTROLLED COMPARISONS

- *The Essentials*, Chapter 5
- *Stata Companion*, Chapter 5

**TAKE HOME EXAM I (48 hours)**

## PART III: BASICS OF STATISTICS INFERENCE

### WEEK 8 [OCTOBER 13]: BASIC PROBABILITY AND INFERENCE STATISTICS

Random sampling, population parameters and sample statistics, central limit theorem, normal distributions

- *The Essentials*, Chapter 6, beginning-177

#### Homework for Week 9:

- Peer review of paper proposal

### WEEK 9 [OCTOBER 20]: SAMPLE STATISTICS

Standard errors, confidence intervals, margin of error, t-tests

- *The Essentials*, Chapter 6, 177-end.
- *Stata Companion*, Chapter 6

#### Homework for Week 10:

- *Stata Companion*, Chapter 6 exercises

### WEEK 10 [OCTOBER 27]: MEASURES OF ASSOCIATION & TESTS OF SIGNIFICANCE

Statistical significance, null hypothesis testing, Chi-Square, measures of association.

- *The Essentials*, Chapter 7

#### Homework for Week 11:

- *Stata Companion*, Chapter 7 exercises

## PART IV: FOUNDATIONS OF ORDINARY LEAST SQUARES (OLS)

### WEEK 11 [NOVEMBER 3: ELECTION DAY!]: THE BASIC REGRESSION MODEL

Correlation, Bivariate regression, R-square

**\*If we can find a day/time that works for everyone, we'll reschedule**

#### Readings:

- *The Essentials*, Chapter 8 (up to page 256)
- *Stata Companion*, Chapter 8 (up to 161)
- <https://egap.org/resource/10-things-to-know-about-reading-a-regression-table/>

#### Homework for Week 12:

- *Stata Companion*, Chapter 8 (exercises 1-3)
- Estimate a bivariate regression (with your independent and dependent variables) based on your research paper. Graph and interpret the results. Recode one of the variables and run the regression again. Any significant changes? Are your results robust to the new coding? Your submission should include the table, the graph (only for your main results), and your interpretation (about 2 pages).



## **WEEK 12 [NOVEMBER 10]: MULTIPLE REGRESSION I**

### Multiple Regression

- *The Essentials*, Chapter 8 (from page 256 till the end)
- *Stata Companion*, Chapter 8 (from 161 till the end)

### **Homework for Week 13:**

- *Stata Companion*, Chapter 8 (exercises 4-6)
- Estimate a multivariate regression based on your research paper. Employ the key independent variable and the dependent variable and at least three more relevant variables (controls). Add one variable at a time and see how the magnitude and statistical significance of the coefficient for the main variable change. Graph and interpret the results. As a robustness check, recode one of your main controls and run the regression again. Any significant changes in your main independent variable? Are your results robust to the new coding? Your submission should include the table(s), the graph (one is enough), and your interpretation (about 2 pages).

## **WEEK 13 [NOVEMBER 17]: MULTIPLE REGRESSION II**

### Multiple regression, interactions, dummy variables, model specification

- *Stata Companion*, Chapter 9

### **Homework for Week 14:**

- Peer review of someone's else Multivariate regression assignment.
- *Stata Companion*, Chapter 9 exercises

## **WEEK 14 [NOVEMBER 24: LAST DAY OF CLASSES!]: WRAP UP AND FINAL EXAM REVIEW**

**TAKE HOME EXAM II (48 hours)**

**SATURDAY 12/5 (SET BY THE REGISTER), 4:00PM: FINAL PAPER IS DUE**