

# POLS 4150: Research Methods in Political Science \*

Instructor: [David Cottrell](#)

Fall, 2019

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Lectures:	TuTh	12:30pm - 1:45pm	368 MLC
Office hours:	Th	2:00pm - 4:00pm	409 Baldwin Hall

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## Course Description

Scholars in political science and in disciplines across the social sciences are increasingly relying on quantitative, data-driven methods to answer important questions in their field. This course provides an introduction to the study of politics through quantitative reasoning and data analysis. We will cover fundamental statistical principles underlying empirical research in political science while also learning to analyze data through basic programming in R. This course will introduce important concepts in statistics - like causality, measurement, prediction, probability, and uncertainty - and will equip students with the tools and techniques commonly used in political science research. Students will leave the course with a foundational set of skills necessary for conducting empirical research and for evaluating statistical claims and hypotheses.

## Required Text

- Imai, K. (2017). *Quantitative Social Science: An Introduction*. Princeton University Press

## Statistical Software

For data analysis, we will be using [R](#). R is an open-source (free!) statistical computing environment widely used for manipulating data, performing statistics, and producing graphics. To run R, we will take advantage of a commonly used integrated development environment (IDE) called RStudio. RStudio provides a user-friendly interface for accessing and computing in R. Moreover, we will be using a feature of RStudio that allows you compile your R code into nicely formatted pdf documents. This feature relies on an application called [L<sup>A</sup>T<sub>E</sub>X](#), but we will use a more efficient version of this called TinyTex. So, before the second day of class you will need to:

1. Download R ([here](#))
2. Download the open source RStudio Desktop ([here](#)).
3. Open RStudio and install the [TinyTex](#) package by entering the following code into the console.

```
1 > install.packages("devtools")
2 > devtools::install_github("yihui/tinytex")
3 > tinytex::install_tinytex()
```

You can find just about everything you need for learning R online. Answers to most of your questions will likely be found in online forums, blogs, and various online tutorials. For example, you can find a really great (and free) introduction to R [here](#) and some other helpful resources for learning [here](#) and [here](#). I encourage you to check out the R blogging community [here](#).

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

## Computers

Bring your computer with R installed to every class, quiz, and exam.

## Grades

10% Quizzes  
20% Homework  
30% Midterm  
40% Final

<b>A</b>	100-94%	<b>B</b>	86-84%	<b>C</b>	76-74%	<b>D</b>	66-64%
<b>A-</b>	93-90%	<b>B-</b>	83-80%	<b>C-</b>	73-70%	<b>D-</b>	60-63%
<b>B+</b>	89-87%	<b>C+</b>	79-77%	<b>D+</b>	69-67%	<b>F</b>	59-0%

## Homework

Throughout the semester, I will give you a number of homework assignments. They will be posted on eLC with firm deadlines. These assignments will provide you an opportunity to analyze data and program in R. For the first assignment, you will complete four Data Camp tutorials (Intro to basics, Vectors, Matrices, and Data frames). For the second assignment, you will complete two more tutorials (Factors and Conditionals and Control Flow). For all other assignments, I will give you a set of questions asking you analyze data in R. You will submit your answers electronically online by the deadline. Late assignments will not be accepted without a legitimate excuse.

## Exams and Quizzes

There will be two exams (a midterm and a final) and there will be multiple quizzes throughout the quarter. The exams and quizzes are designed to test your understanding of the concepts addressed in the readings and in lecture. They are also designed to test your ability to analyze data, as well as your ability to code in R. Please be prepared to use your laptops for any exam or quiz. Failure to attend a quiz or exam will result in a 0 score.

## Attendance

You are expected to attend every class. Be aware that you are responsible for knowing the material that we cover in class, even if you are unable to attend.

## Ethics

UGA Student Honor Code: *“I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others.”* A Culture of Honesty, the University’s policy and procedures for handling cases of suspected dishonesty, can be found at [www.uga.edu/ovpi](http://www.uga.edu/ovpi). Please adhere to the university’s standards for academic honesty and integrity. Do not submit someone else’s code as your own. You must complete your homework and exams independently.

## Accessibility Needs

Students with special needs that require accommodation should notify me and the Office for Disability Services in the first two weeks of the course so appropriate arrangements can be made. All information and documentation of special needs is confidential.

## Agenda

Your readings for each week should be completed by the beginning of the week. I've posted the data and the R scripts used by the textbook on eLC. To retrieve them, simply download the Data.zip file in the folder named, "Data for book." You should execute the code provided in the examples as you are reading through the chapters.

Wk	Date	Topic	Readings	Swirl Practice
1	Th 08/15	Review syllabus		
2	Tu 08/20 - Th 08/22	Introduction to R:	Preface - 1.4	INTRO1 and INTRO2
3	Tu 08/27 - <del>Th 08/29</del>	Introduction to R:	2.1-2.2	CAUSALITY1
4	Tu 09/03 - Th 09/05	Causality	2.3-2.5	
5	Tu 09/10 - Th 09/12	Causality	2.6-2.7	CAUSALITY2
6	Tu 09/17 - Th 09/19	Measurement	3.1-3.3	MEASUREMENT1
7	Tu 09/24 - Th 09/26	Measurement	3.4-3.8	MEASUREMENT2
8	Tu 10/01 - Th 10/03	Catch-up and review		
9	Tu 10/08	MIDTERM		
9	Th 10/10	Prediction	4.1	PREDICTION1
10	Tu 10/15 - Th 10/17	Prediction	4.2	PREDICTION2
11	Tu 10/22 - Th 10/24	Prediction	4.3-4.4	PREDICTION3
12	Tu 10/29 - Th 10/31	Probability	6.1-6.3	PROBABILITY1
13	Tu 11/05 - Th 11/07	Probability	6.4-6.5	PROBABILITY2
14	Tu 11/12 - Th 11/14	Uncertainty	7.1	UNCERTAINTY1
15	Tu 11/19 - Th 11/21	Uncertainty	7.2	UNCERTAINTY2
16	Tu 11/26 - <del>Th 11/28</del>	Uncertainty	7.3-end	UNCERTAINTY3
17	Tu 12/03	Catch-up and review		
	Tu 12/10	FINAL from 12-3pm		