UC SANTA BARBARA

POLS 15 Introduction to Research in Political Science

Department of Political Science
University of California, Santa Barbara
Summer 2020 (Session A)

Instructor: Alice Lépissier
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Lecture: 9:30am-10:35am on Mondays, Tuesdays, and Wednesdays as pre-recorded video modules, and Thursdays as a live webinar
Office hours: 11:30am-12:30pm on Mondays, Tuesdays, and Wednesdays

Teaching Assistants	Rui Wang	Ilia Nikiforov
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Section	Tuesday 11am-12:20pm Wednesday 11am-12:20pm	Tuesday 1pm-2:20pm Tuesday 3pm-4:20pm
Office hours (own students)	Wednesday 1pm-3pm	Wednesday 1pm-3pm
Office hours (whole class)	Friday 1pm-2m	Wednesday 3pm-4pm

Course description

Political science is a discipline within social science that uses statistics and research design to understand and explain political phenomena. If you want to understand and interpret political science research, you need to understand how it is done. The goal of this course is to understand the process social scientists use to test theories and discover patterns in data.

This course teaches basic statistical techniques that are useful for describing and making inferences from data. The course will also familiarize students with R, a widely used and free statistical platform for analyzing data. By the end of the course, students should be able to understand and critique research, and perform basic statistical analyses in R.

You can only learn statistics by doing statistics. You can only learn to code by trying to code. In recognition of this fact, the homework for this course will be extensive, requiring students to complete 5 problem sets over the summer session. In addition, students will have two exams: a midterm and a final. Students must remotely attend section once a week in addition to lecture four times a week. In other words, this course is a significant amount of work.

While this is a summer session course and takes place over the shorter six-week period, its brevity is not an indication of its difficulty. We will cover the same amount of material as a typical quarter course in a shorter period of time. This makes POLS 15 particularly challenging during summer sessions.

Ensure you have the time in your schedule this summer session to do the work necessary to excel in this course.

The only prerequisite for this course is a willingness to learn.

Remote learning

Lectures

Our lecture slot is reserved on Monday, Tuesday, Wednesday, and Thursday from 9:30am-10:35am. This course will mix asynchronous (i.e. pre-recorded lectures) with synchronous (i.e. live) delivery of content, in order to provide students with maximum flexibility while retaining a sense of engagement and community.

Lectures on Mondays, Tuesdays, and Wednesdays will be pre-recorded. Each of those weekdays, I will post a series of short video modules. The modules will be approximately 20 minutes in length. The slides will also be available separately without a voiceover for your convenience. You can watch these modules in your own time, and at your own pace, during the week. This will allow you to pause, rewind, and take notes.

That being said, it is important that you keep up with the lecture material, especially given how short the summer sessions are. In order to incentivize you to keep up with the video modules, you will earn 1 point per week that you watch at least 90% of the videos for that week by the Friday at 11pm (i.e. when your problem set is due), for a total possible of 6 points.

Lectures on Thursdays will be live in the form of a Zoom webinar. This will allow students to post questions on the chat and for me to answer them in a live setting. Attendance to the live webinar will be optional, and the webinar will be recorded and subsequently posted to the GauchoSpace. By default, your microphone and video will be turned off during the webinar, but you are welcome to unmute yourself to participate if you prefer to ask a question by voice rather than by chat.

Sections

Students are assigned to one of 4 sections. You must attend section remotely each week, and you must attend the section to which you are assigned. While lecture time will focus on conveying research methods, in section you will predominately learn and practice R. Section may also be used for review of class concepts or background material from time to time. **Attendance will be taken and counts towards your grade.** Given the TAs have a lot to cover in every session, please arrive on time: **late arrivals will negatively affect your grade.**

Office hours

We want to provide you with the opportunity to interface with the professor and the TAs every day of the week from Monday through Friday. Therefore, I will Zoom in to a "virtual office" (or Zoom room) on Mondays, Tuesday, and Wednesdays from 11:30am-12:30pm. Please do feel free to Zoom in to office hours even if it just to introduce yourself or to hang out and listen to your peers' questions. I would like to virtually meet you!

The TAs will hold public office hours open to the entire class as follows:

- Wednesdays 3pm-4pm: Ilia
- Fridays 1pm-2pm: Rui

The address of the Zoom rooms are available on the course GauchoSpace.

Course requirements

The course is out of a total of 100 points. There are opportunities for extra credit scattered throughout the course. Do make use of them!

Class participation (12 points)

The class participation component for this course is comprised of attending section and watching the video modules in a timely fashion (see description above).

Problem sets (50 points)

There will be 5 problem sets during the quarter. The problem sets will focus on coding in R and will give you a chance to apply the research design skills you will learn in class using real-world data. The problem sets will be available a week before at 6pm and will be due the following week at 11:59pm (submitted via GauchoSpace). See Guidance on problem sets for tips on how to approach the assignments. Please mark the due dates and times listed in Important dates in your calendar.

Midterm examination (15 points)

There will be one midterm examination on Wednesday July 15. It will cover all the material from the Introduction to Hypothesis testing (i.e. weeks 1 to 3, inclusive). The midterm exam is designed to take you less than 1h30 to complete. It will be open book and open notes, and you will have an 18-hour window to complete it. You may not discuss exam questions or exam-related topics until the Friday after the midterm.

Final examination (23 points)

A final examination will be held on Friday 31 July, as scheduled by the registrar. It will cover all the material from the course, with greater emphasis on topics not covered in problem sets or the midterm. The exam is designed to take you less than 3 hours to complete. The final will be open book and open notes, and you will have a 24-hour window to complete it. You may not discuss your final exam with any other intelligent being during the exam window.

Important dates

Assignment	Available on GauchoSpace	Due on GauchoSpace
Problem set 1	Monday June 22, 9:00am	Friday June 26, 11:55pm
Problem set 2	Friday June 26, 6pm	Friday July 3, 11:55pm
Problem set 3	Friday July 3, 6pm	Friday July 10, 11:55pm
Midterm examination	Wednesday July 15, 3pm	Thursday July 16, 11am
Problem set 4	Monday July 13, 6pm	Monday July 20, 11:55pm
Problem set 5	Monday July 20, 6pm	Monday July 27,11:55pm
Final examination	Friday July 31, 9am	Saturday August 1, 9am

Software

We will be using R, which is an open-source statistical software. This course will require you to write code. To interface with R, we will use a program called RStudio. RStudio is a useful tool that makes coding in R much easier.

Installation

There are two options to access RStudio:

1. You can access it online via https://pols15.lsit.ucsb.edu/ and sign in with your UCSB NetID.
2. You can download it on your local computer so that you can use RStudio offline.

You can choose whatever solution works best for you.

Instructions if you want to install RStudio on your computer:

You first need to download and install R on your computer, and then RStudio, using the following links:

1. Download and install R from https://cran.rstudio.com/
2. Download and install RStudio from https://rstudio.com/products/rstudio/download/#download

Make sure you choose the appropriate distribution for your computer (Windows, Mac, or Linux). Go to the TA office hours if you need assistance with installing RStudio on your computer.

Resources to learn R

R is an open-source programming language with a vibrant online community dedicated to posting tutorials and self-learning resources. R is the workhorse of many modern data scientists. By learning R, you will be acquiring valuable skills that can make you more competitive on the job market.

Like any language, you can only learn R by rolling your sleeves up, giving it a go, and practicing. Consistent practice will make you a better programmer. Remember that there are no programming prerequisites in this course. Being willing to try and to make mistakes, maintaining a can-do attitude, and knowing how to search for answers to your questions will be key to learning how to code in R.

In that spirit, here are some free resources to get you started:

- Introduction to R on DataCamp (free online course)
- R for Data Science by Garrett Grolemund and Hadley Wickham (free online book)

Readings

Textbook

The textbook for this course is *Real Stats* by Michael A. Bailey.

The book is available for purchase at the UCSB bookstore as a digital copy (http://campusstore.ucsb.edu/CourseMaterials), and for rental outside of the bookstore (https://redshelf.com/book/1552921/real-stats-1552921-9780197540701).

Articles (available on GauchoSpace)

A few additional readings, primarily political science research articles, will be posted on GauchoSpace. These readings will help students see how the ideas learned in the textbook

are used in actual political science research. It is important to read these articles: they will come up on problem sets and in the exams.

Students should come to lecture prepared, having read the assigned readings for that section of the course. This approach will greatly help with understanding the material in class and with completing weekly problem sets.

- Bateson, Regina. 2012. "Crime Victimization and Political Participation." *American Political Science Review* 106(3): 570–87.
- Gerber, Alan S., Donald P. Green, and Christopher W. Larimer. 2008. "Social Pressure and Voter Turnout: Evidence from a Large-Scale Field Experiment." *American Political Science Review* 102(1): 33–48.
- Kalla, Joshua L., and David E. Broockman. 2016. "Campaign Contributions Facilitate Access to Congressional Officials: A Randomized Field Experiment." *American Journal of Political Science* 60(3): 545–58.
- Wand, Jonathan N. et al. 2001. "The Butterfly Did It: The Aberrant Vote for Buchanan in Palm Beach County, Florida." *American Political Science Review* 95(4): 793–810.

Course policies

Academic honesty

Integrity of scholarship is essential for an academic community. The University expects that both faculty and students will honor this principle and in so doing protect the validity of intellectual work conducted at the University and the reputation of your UCSB degrees. This means all academic work must be done by the individual to whom it was assigned, without unauthorized aid of any kind.

UCSB defines "the use of another's idea or words without proper attribution or credit." It is a serious academic offense. For this course, you may discuss problem sets with fellow students. However, you must write up the answer to the questions in your own words. In the case of the midterm, you may not discuss the questions or your answers with others until the Friday after the midterm.

All suspicions of academic misconduct will be reported to the Office of Judicial Affairs according to University policy. The consequences may be severe, up to expulsion from UCSB for repeated offenders.

Please do not cheat in this class. Students who are caught cheating on an assignment will receive an automatic score of 0 and may face additional sanctions by the university. If you are not sure what constitutes plagiarism, ask either the Professor or the TA. You should ask us for help if you are struggling before you resort to such desperate measures.

Online discussion forum

We have an online discussion forum on the GauchoSpace. This is the place where you can post your questions about the course material and receive answers from your peers and the teaching team. Please make liberal use of the online discussion forum. Answering your peers' questions is the best way to verify that you truly understand a concept.

Posting regularly on the forum, even just to ask a question, will generate extra credit.

Extra credit

If you want to improve your grade in the course (apart from putting in extra effort and attending office hours), you can take advantage of the opportunities for extra credit throughout the course. The two ways that you can earn credit are by:

(1) posting on the online discussion forum (see above),
(2) answering small extra credit questions in the problem sets.

These are the opportunities that you can use to earn extra points in the course. I do not provide "grade bumps" after the fact, so please do not ask.

Late policy

Late problem sets will not be accepted and will receive a score of zero. Exceptions to this policy will only be made for cases of documented family or medical emergencies.

The late policy for assignments is designed to avoid punishing those students who hand in their work on time.

Guidance on problem sets

Students are encouraged to discuss challenges they encounter in solving the problem sets with each other. However, every step of every problem must be produced by the individual student, and all work must be written up independently. Neither code nor written solutions may be copied verbatim. For analytical questions, you must include your intermediate steps, as well as comments on those steps when appropriate so that we can understand your reasoning. For data analysis questions, you must include annotated code as part of your answers.

Your problem set must list the names of any students with whom you have worked on the problems. In addition to working with your peers, if you run into trouble, try googling things: there are many resources on the internet to help you learn statistics and R. In fact, a lot of the "soft skills" you will learn in class are how to help yourself, i.e. how to troubleshoot code and how to appropriately name problems so that you know where to look for help.

You can also use the online forum on GauchoSpace to post questions which you and the TAs can help answer. If you help answer questions on the online forum, this will improve your participation grade.

Problem sets are to be written in a language called RMarkdown. The problem sets on the course website will be posted online in this format. You can easily open these in the RStudio software. This will make it easy for you to write your responses using the same formatting and language. As a result, your problem sets will automatically include the results of running your code in HTML format.

All your problem sets will be submitted online via the GauchoSpace, and must include both the R code and the HTML.

How to succeed in POLS 15

(1) Believe in your abilities to learn the material.

Self-efficacy is the number one of predictor of success in this course. Self-efficacy is "a personal belief in one's capability to organize and execute courses of action required to attain designated types of performances" (Artino A. R., Jr (2012)). In other words, it is your belief in your abilities to work through this course, complete the assignments on time, and study the material so that, at the end, you will learn statistics and coding. **Please remember that there are no prerequisites for this course.** We do not expect you to know how to code already, and there is no statistical knowledge required beyond high-school mathematics. You may struggle through a problem set or piece of code; but this is "a feature, not a bug" of the learning process. There is pedagogical value in working through a problem and seeing it through to the other end.

(2) Seek help early and often.

While there is great value in working through a problem by yourself first, you should not struggle on your own forever. Post on the online discussion forum, ask questions during the live webinar on Thursdays, and come visit the professor and the TAs during their office hours. We are here to guide you through the material, but we cannot help you if you do not ask. You may collaborate and discuss the assignments with your colleagues, but the write-up and the code must be your own (see Guidance on problem sets).

(3) Hand in all the assignments.

The assignments are worth 50% of your grade, and late problem sets are not accepted. Therefore, it is in your best interest to give every assignment a try and to hand it in on time. The vast majority of students do this. However, a student who is struggling may be tempted to not hand in their problem set. This is the fastest way to end up failing the class or to dramatically reduce your grade. Therefore, please hand in at least an attempt every single time, and you will be much more likely to succeed in the course.

(4) Take advantage of opportunities for extra credit.

If you want to improve your grade in the course, apart from putting in extra effort and attending office hours, the best way to do so is by completing little extra credit questions throughout the quarter. Take advantage of the extra credit opportunities and you will get a few extra points on your final grade.

(5) Study hard for the midterm and the final exam.

We will make sure to provide lots of guidance in class on what you need to know for both tests. However, students still have to do the hard work of mastering this material. Make sure that you put in the time to study for the exams. If you do not study, the tests will drag down your grade.

(6) Take active notes during lecture.

The lectures on Mondays, Tuesdays, and Wednesdays will be pre-recorded in the form of short video modules. This affords you considerable flexibility in how you want to organize your time in a way that is best suited for your learning needs. I recommend that you resist the temptation to "cram", and that you watch the video modules on the day they come out. This will spread out your viewing experience so that you are fully engaged when you watch the

slides. You should plan on taking notes by hand as you watch in order to write down key concepts. An added advantage of watching the videos on time is that you can come prepared with questions during the live webinar on Thursdays. As long as you watch 90% of the weekly video modules by the time your problem set is due that week (i.e. Fridays at 11pm), you will get credit for this component of the participation grade.

(7) Take care of your health and wellness.

Statistics can be hard material. You are much more likely to understand the concepts if you are eating well, sleeping well, and taking care of your health and wellness. Keep in mind there is a food bank on campus for students who need extra support to obtain healthy food: https://foodbank.as.ucsb.edu/. There is also a counseling service on campus, CAPS: http://caps.sa.ucsb.edu/ and a sexual violence support center: http://sexualviolence.ucsb.edu/. Seek out help when you need it and support your fellow students' health and wellness if they need help.

If you are facing any challenges in food or housing and believe this may affect your performance in the class, you are urged to meet with a Food Security and CalFresh Advocate who is aware of the broad variety of resources that UCSB has to offer. See their drop-in hours at http://food.ucsb.edu/. You are also urged to contact the professor if you feel comfortable doing so.

Course schedule

This schedule is subject to change. It is current as of June 19, 2020. Please see the GauchoSpace for the latest version.

Weekday	Date	Topic	Readings
Monday	June 22	Introduction	
Tuesday	June 23	Causality	Chapter 1
Wednesday	June 24	Formalizing the regression model	
Thursday	June 25	Experimental design	
Friday	June 26	**Problem set 1 due**	
Monday	June 29	Introduction to probability theory	Chapter 2
Tuesday	June 30	Random variables, distributions, and laws	Appendix
Wednesday	July 1	Bivariate OLS	Chapter 3
Thursday	July 2	Regression in practice	
Friday	July 3	**Problem set 2 due**	
Monday	July 6	Properties of OLS	
Tuesday	July 7	Limits to regression	Wand et al. 2001
Wednesday	July 8	Hypothesis testing	Chapter 4
Thursday	July 9	Statistical inference	
Friday	July 10	**Problem set 3 due**	
Monday	July 13	Statistical inference, continued	KB 2016
Tuesday	July 14	Midterm review	
Wednesday	July 15	**Midterm examination**	
Thursday	July 16	Multivariate OLS	Chapter 5
Monday	July 20	**Problem set 4 due** Mechanics of multivariate OLS	
Tuesday	July 21	Multivariate OLS in practice	Bateson 2012
Wednesday	July 22	Types of variables and data-sets	Chapter 6.1-6.3
Thursday	July 23	Experiments in political science	Chapter 10 GGL 2008
Monday	July 27	**Problem set 5 due** Natural experiments	
Tuesday	July 28		
Wednesday	July 29	Data science for political scientists	
Thursday	July 30	Course review	
Friday	July 31	**Final examination**	

Accommodations for disability

The University of California at Santa Barbara is committed to providing a learning environment that meets the needs of its diverse student body. If you require accommodations, please get in touch with the Disabled Students Program (https://dsp.sa.ucsb.edu/) as soon as you can.

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However, you may not record discussion sections through any means. You may not reproduce, distribute or display (post/upload) lecture notes, recordings, or course materials in any other way – whether or not a fee is charged – without our express prior written consent. You also may not allow others to do so. If you do so, you may be subject to student conduct proceedings under the UC Santa Barbara Student Code of Conduct.

Similarly, you own the copyright in your original papers and exam essays. If we are interested in posting your answers or papers on the course web site, we will ask for your written permission.

The Thursday lecture will be a live webinar. The webinar will be recorded and subsequently posted to the GauchoSpace. If do not wish to be recorded, please mute yourself and turn off your video. This will the default setting when you Zoom in to the webinar.