
INTRODUCTION TO POLITICAL ANALYSIS
Fall 2017 POLS 3000 (QI)
Utah State University
Course Syllabus
Last updated on Wednesday 30th August, 2017

1 Course Objectives

1. *Gaining factual knowledge about evidence-based analysis of politics (terminology, classifications, methods, trends).*

This course introduces basic principles of causal and statistical inference which allow us to answer many social science questions by analyzing quantitative data. For instance, why do some countries experience civil wars while most do not? What determines one's choice of presidential candidate? Does discrimination exist in hiring? This course will provide the necessary foundation for answering such questions through data analysis.

2. *Learning to apply course material to solve problems.*

This course introduces basic programming skills for data analysis, using open-source statistical software R, so that students can start answering social science questions of their own interest.

3. *Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course.*

This is an introductory data analysis course. Students who take this course are encouraged to continue using statistics in their work in college and beyond. In today's information world, there is, arguably, a deficit of people trained to make sense of quantitative data. The role of statistics is rapidly increasing in public policy, government, politics, business, sports, media, and many other parts of society. For more, see: "[For Today's Graduate, Just One Word: Statistics](#)," "[The 10 Skills Employers Most Want In 2015 Graduates](#)," "[Why Basic Data Analysis Is The Most Valuable Skill You Can Learn](#)."

2 Contact Information and Logistics

- Professor Anna O. Pechenkina:

- Email: anna.pechenkina@usu.edu. Responses to emails may be expected on average within 24 hrs on weekdays and 48 hrs on weekends.
- Office hours: MW at 4PM–5PM and by appointment. To make an appointment outside the office hours, please see me after class or send me an email.

Note: questions about lectures, readings, problem sets, and exams should be posted on Canvas via Discussions, so that other students in the class can benefit from them (see section 6.7 of the syllabus). If I receive a question of general interest via email, I will post it and my answer to the forum. Make sure to tell me explicitly in your email if you'd like to stay anonymous.

- Office: [328D Old Main](#).

- Office phone: 435.797.7318. Please do not leave voice mail, send me an email instead.
- Teaching Assistant: Siniša Mirić:
 - Email: sinisa.miric@aggiemail.usu.edu.
 - Office hours: Thursdays at 2PM–4PM and by appointment.
To make an appointment outside the office hours, please send an email.
 - Office: [328A Old Main](#).
- Class meetings:
 - Mondays and Wednesdays: 12:30PM-1:20PM in [Huntsman Hall 222](#).
 - Fridays: 12:30PM-1:20PM in [AGRS 135 \(Ag Science Computer Lab\)](#).

3 Textbook and Course Design

Imai, Kosuke (2017). *Quantitative Social Science: Introduction*. Princeton University Press.

To save money, consider sharing or e-renting.

The entire course follows closely the design of Kosuke Imai’s “Introduction to Quantitative Social Science” course that he teaches at Princeton University.

4 Statistical Software

R is a free, open-source [language for statistical computing and graphics](#). It makes simulation and sampling easily accessible. More on R’s popularity: [watch Courtney Brown’s \(a political scientist at Emory University\) spiel on why R is here to stay](#) and read a [summary of software use in data analytics](#).

We will program in R (www.r-project.org), using an interface RStudio (www.rstudio.com).

While very powerful, R can be more difficult to learn than some of its alternatives. Every Friday class meeting is designed as a computer lab to facilitate learning R.

5 Course website

Course information, syllabus, assignments, forum, and grades are available at [USU Canvas](#).

6 Earning Grades

The course requirements consist of the following components. [Use this course calendar to keep track of the deadlines](#).

6.1 Online programming assignments (10%)

There will be twelve online programming assignments every Wednesday (except the first week) before class. They will be graded as pass/fail, i.e., every submitted *Swirl* exercise will count as 8.34 points, while every missed exercise will receive 0 points. *Collaboration is permitted and encouraged*. These assignments are directly based on the textbook and are designed to check whether you understood the material covered in the textbook.

Evaluation

Assignment:	Max Points:	Your Points:	Percent of Grade:
Online programming assignments	100	_____	10%
Problem sets	150	_____	15%
Take-home exam 1	200	_____	20%
Take-home exam 2	200	_____	20%
Closed-book quiz	100	_____	10%
Group project	150	_____	15%
One-minute papers	50	_____	5%
In-class and Canvas participation	50	_____	5%
Total	1,000		100%

Grades

Grades:	Percent:		
A	93 - 100%	C	73 - 76.99%
A-	90 - 92.99%	C-	70 - 72.99%
B+	87 - 89.99%	D+	67 - 69.99%
B	83 - 86.99%	D	63 - 66.99%
B-	80 - 82.99%	D-	60 - 62.99%
C+	77 - 79.99%	F	59.9% and below

6.2 Problem sets (15%)

There will be four problem sets during the semester. The problem sets provide an opportunity for students to conduct data analysis and learn important statistical concepts. Each problem set will be graded as unsatisfactory (25 points), satisfactory (37.5 points), or excellent (50 points). Students must complete at least three of them and the best three grades will be counted towards the final course grade.

Collaboration is permitted, but students must write up the code and answers on their own. Please note that copying someone else's code is plagiarism. You are encouraged to work in groups to reach an understanding of how to solve a problem but the code that you submit within the problem set must be your own.

6.3 Take-home exams (40%)

There will be two open-book take-home exams (20% each), one due on October 13 and the other due on December 1. *No collaboration is allowed, and students should not discuss their contents with anyone before submission.*

6.4 Closed-book Quiz at the Testing Center (10%)

There will be one closed-book quiz available from Friday, November 17 to Tuesday, November 21 (instead of class meeting on Monday, November 20th) held at the Testing Center. The quiz

will assess how well students are understanding the key concepts covered in the class. *This is an individual, single-attempt quiz; no collaboration is allowed.*

You need to contact the Testing Center in advance to schedule your individual appointment time to take the quiz.

6.5 Final group project (15%)

There will be a final group project due during the final exams week (exact date TBA). Students will collaborate to analyze a data set of interest and report findings in a short memo. The details will be announced later during the semester.

6.6 One-minute Papers (5%)

One-minute papers (OMPs) are thought papers or activities based on assigned readings or lecture material, and can be administered at any time during the class period, on random days throughout the semester. Some of the one-minute paper assignments will test your knowledge of the assigned readings, others will ask you to contrast various argument, or form an opinion on a contested issue. The papers must demonstrate thoughtful responses to the question. To prepare for one-minute papers, you will need to complete the assigned readings before each class meeting.

Each OMP is worth 5 points. You may received either full (5 points) or partial (2.5 points) or no credit (0 points) for your answer. Over the semester, 10 OMPs will be administered at random.

6.7 Participation (5%)

Students should actively participate in all aspects of the course. Class participation will be judged based on questions asked/answered during the lectures, the computer lab, and on Canvas. You will receive five 10-point participation grades.

Three grades will evaluate your in-class contributions. To prepare for in-class participation, you will need to complete the assigned readings/do homework before each class/lab meeting. The points will reflect the following levels of participation:

- A: attends class regularly and always contributes to the discussion by bringing up relevant questions and providing thoughtful commentary (10 out of 10 points).
- B: attends class/lab regularly and frequently contributes (8.5 out of 10 points).
- C: attends class/lab regularly and sometimes contributes (7.5 out of 10 points).
- D: attends class/lab regularly but never contributes (6.5 out of 10 points).
- F: attends class/lab irregularly, i.e., 5 or more undocumented absences (0 out of 10 points).

Two grades will evaluate your contributions to the Discussions on Canvas. To receive full credit for Canvas participation you will need to ask or answer at least two questions via Discussions on Canvas (see due dates on Canvas). That is, over the course of the semester, you are required to contribute at least four substantive entries via Discussions on Canvas.

7 Academic Conduct

An academic integrity violation (e.g., cheating, falsification, or plagiarism) will result in a failing grade for the assignment. If another instance of violation occurs, it will result in a failing grade for the course. Make sure to read the [USU Student Code of Conduct, Article VI](#) to learn how USU defines cheating and other violations of academic integrity.

8 Disability

If you wish to request an accommodation due to a documented disability, please contact the [USU Disability Resource Center](#) as soon as possible.

9 Late assignments

All written assignments will be marked down 1% for each hour that they are late.

Note: it is important to arrive at the Testing Center to take your closed-book quiz at the scheduled time, as the Testing Center is often busy and may not be able to accommodate students at other times.

10 Syllabus Change Policy

The syllabus is subject to change with notice. When in doubt, resort to the version of the syllabus posted on Canvas.

11 Course Schedule

Use [this course calendar](#) to keep track of the deadlines. The interactive syllabus—with all the content linked to it—is available under Pages on Canvas.

Note that computer lab meetings will take place in a different location than lectures:

- Mondays and Wednesdays: 12:30PM-1:20PM in [Huntsman Hall 222](#)
- Fridays: 12:30PM-1:20PM in [AGRS 135 \(Ag Science Computer Lab\)](#)

Day	Topic	Readings and Assignments
Introduction		
Week 1: Aug 28–Sep 1		
T	Overview of the course	
W	Introduction to R	Chapter 1 (Section 1.2–1.3) Read the syllabus, try <i>Swirl</i>
F	Computer lab 1	<i>Swirl assignment 1 due by 5PM</i>
Causality		
Week 2: Sep 4–8		
M	No class, Labor Day	
W	Randomized experiments I	Chapter 2 (Sections 2.1–2.4)

Continued on next page

Day	Topic	Readings and Assignments
		<i>Swirl assignment 2 due at noon</i>
F	Computer lab 2	Problem set 1 posted
Week 3: Sep 11–15		
M	Randomized experiments II	Chapter 2 (Sections 2.5–2.7)
	Observational studies I	
W	Observational studies II	<i>Swirl assignment 3 due at noon</i>
F	Computer lab 3	<i>Problem set 1 due at noon</i>
Measurement		
Week 4: Sep 18–22		
M	Survey sampling I	Chapter 3 (Sections 3.1–3.4)
W	Survey sampling II	<i>Swirl assignment 4 due at noon</i>
F	Computer lab 4	Problem set 2 posted
Week 5: Sep 25–29		
M	Clustering I	Chapter 3 (Sections 3.5–3.7)
W	Clustering II	<i>Swirl assignment 5 due at noon</i>
F	Computer lab 5	<i>Problem set 2 due at noon</i>
Prediction		
Week 6: Oct 2–6		
M	Prediction	Chapter 4 (Section 4.1)
W	Loop	<i>Swirl assignment 6 due at noon</i>
F	Computer lab 6	Take-home Exam 1 posted
Week 7: Oct 9–13		
M	Regression I	Chapter 4 (Sections 4.2–4.3)
W	Regression II	<i>Swirl assignment 7 due at noon</i>
F	No computer lab	<i>Take-home Exam 1 due at noon</i>
Probability		
Week 8: Oct 16–19		
M	Probability	Watch the assigned video lectures
W	Conditional probability	<i>Instead of Swirl, probability assignment 1</i>
Th	Computer lab 7	Problem set 3 posted
Week 9: Oct 23–27		
M	Random variables and their distributions	Watch the assigned video lectures
W	Large sample theorems	<i>Instead of Swirl, probability assignment 2</i>
F	Computer lab 8	<i>Problem set 3 due at noon</i>
Uncertainty		
Week 10: Oct 30–Nov 3		
M	Estimation I	Chapter 7 (Section 7.1)
W	Estimation II	<i>Swirl assignment 8 due at noon</i>

Continued on next page

Day	Topic	Readings and Assignments
F	Computer lab 9	Problem set 4 posted
Week 11: Nov 6–10		
M	Hypothesis Testing I	Chapter 7 (Section 7.2)
W	Hypothesis Testing II	<i>Instead of Swirl, uncertainty assignment 2</i>
F	Computer lab 10	<i>Problem set 4 due at noon</i>
Week 12: Nov 13–17		
M	Regression with uncertainty I	Chapter 7 (Section 7.3)
W	Regression with uncertainty II	<i>Instead of Swirl, uncertainty assignment 3</i>
F	Computer lab 11	Study for the closed-book quiz
Week 13: Nov 20–24		
M	<i>Closed-book quiz at the Testing Center (see 6.4), you need to schedule your appointment ahead of time</i>	
W,F	No classes, Happy Thanksgiving!	
F		Take-home Exam 2 posted
Week 14: Nov 27–Dec 1		
M	Review I	
W	Review II	
F	No computer lab	<i>Take-home Exam 2 due at noon</i>
Week 15: Dec 4–Dec 8		
M	No class: away in DC	
W	No class: meetings with groups regarding the final projects	
F	No class: meetings with groups regarding the final projects	
Week 16: Dec 11–Dec 15		
<i>Group projects due (exact date TBA)</i>		