PSCI 2075: Quantitative Research Methods

University of Colorado Boulder

Fall 2018

Time:	Monday and Wednesday, 12:00-12:50
Location:	VAC 1B20
Instructor:	Dr. Andrew Q. Philips
Office:	KTCH 144
Email:	andrew.philips@colorado.edu
Instructor's office hours:	Tuesday, 2:30 - 4:30 or by appointment
Teaching assistants:	Courtney Johnson, Adriana Molina, Alexandra Palmer, Ian Shapiro
TA office hours:	–Tuesday, 2:00-4:00, KTCH 412 (Johnson)
	–Tuesday, 2:00-4:00, KTCH 234 (Molina)
	–Wednesday, 1:30-3:30, KTCH 215 (Palmer)
	–Wednesday, 1:00-3:00, KTCH 215 (Shapiro)
Methods lab coordinator:	Dalton Dorr
Office hours:	Tuesday, Wednesday and Thursday, 9:00-12:00 and 2:00-5:00, KTCH 371

COURSE DESCRIPTION: Data are all around us. Quantitative data frequently appear in the media, in politics, the workplace, and even in our own lives. This course is designed to turn you into a better consumer–and even producer—of analyses using quantitative data. These skills are becoming increasingly more important in both public and private sector careers.

Data analysis takes practice. To better assist you in gaining skills necessary when working with quantitative data, this course will be taught in the style of "learning-by-doing". Much of the course will involve either group or individual labs (done in class) involving the statistical computer program R. No prior experience with this application is necessary. The goal is to familiarize you with analyzing, presenting, and interpreting patterns in data. While the data used in this class will place an emphasis on the social sciences, the tools learned in this class are easily applied to many other settings.

By the end of this course you should be able to:

- Be a better consumer of data that you are inundated with every day

- Be familiar with examining and analyzing data using R

- Become a producer of quantitative analyses

PREREQUISITES/REQUIREMENTS: There are no prerequisites for this course. You should bring a laptop on the days in which we will be completing group assignments in class. We will also use R in this course. No prior experience with this application is necessary.

TEXTBOOKS/COURSE WEBSITE: There is only one textbook required to the course, which you do not need to purchase since it has not been published yet:

- Brown, David S. *Introduction to Statistics with R: The Art and Practice of Data Analysis*. In Press.

Note that it is expected that you read the required readings or watching any assigned webcasts *before* coming to class. All course materials (including the textbook) will be available on the PSCI 2075 course website on Canvas.

GRADES: Course grades will be based on the following. Participation and quizzes are worth 15% of the final grade. In-class group assignments are worth 20% of the grade. There will be three individual assignments due throughout the course, the first of which is worth 10% and the next two are worth 15%. Last, there will be a take-home final exam worth 25% of the final grade.

Participation and Quizzes	15%
In-Class Group Assignments	20%
Assignment 1	10%
Assignment 2	15%
Assignment 3	15%
Final Exam	25%

The following scale will be used to turn numerical grades into letter ones. Note that I will round up a letter should your grade fall on the number (but on or above 0.5) between two letters (e.g., 89.5 up to 90 rounds up to an A-).

Grade Scale

A	95-100
A-	90-94
B+	87-89
B	84-86
B-	80-83
C+	77-79
C	74-76
C-	70-73
D+	67-69
D	64-66
D-	60-63
F	0-59

ATTENDANCE, PARTICIPATION AND QUIZZES: Attendance and participation is an integral component of undergraduate courses. Students are expected to come to every class *having already completed any readings or assignments due that day*. Participating in group activities is also important.

To help facilitate attendance, a number of quizzes, unannounced, will be held throughout the semester. These will not be difficult, but cannot be made up without a university-excused absence. *Note that these quizzes may also be held during your recitation sessions*.

IN-CLASS GROUP ASSIGNMENTS: Throughout the course there will be in-class group assignments. Groups will be assigned in the first week of classes, based on recitation session. These assignments will comprise 20 percent of the final grade. Weekly assignments will be due by 11:59PM on the week they are assigned. There are no opportunities to turn in late group assignments.

INDIVIDUAL ASSIGNMENTS: Throughout the course there will be three individual assignments due. These are to be completed on your own. The first is worth 10 percent, while the second and third are worth 15 percent. Individual assignments are due on the date listed in the syllabus. For every 24 hours an assignment is late, 10 points will be subtracted (e.g., a 94 would now score an 84).

FINAL EXAM: There will be a take-home final exam at the end of the semester. There is no in-class final exam.

IMPORTANT DUE DATES: Individual assignments are due on the day listed below. Weekly group assignments will be due by 11:59PM on the week they are assigned.

- Assignment I: Due September 28 by 11:59PM

- Assignment II: Due October 26 by 11:59PM

- Assignment III: Due November 30 by 11:59PM

- Take-home Final: Due Tuesday December 18 by 7:00PM

TENTATIVE SCHEDULE:

Week 1: August 27 and 29

Course introduction and introduction to R

Required Readings:

- Brown, Preface, Chapter 1 and 13

Week 2: September 5 (NO CLASS SEPTEMBER 3; LABOR DAY)

Introduction to descriptive statistics

Required Readings:

- Brown, Chapter 2

Week 3: September 10 and 12

Intro to descriptive statistics (continued). Transforming variables

Required Readings:

- Brown, Chapter 3

Week 4: September 17. and 19

Graphical presentations of data

Required Readings:

- Brown, Chapter 4

Week 5: September 24 and 26

Controlling for confounders

Required Readings:

- Brown, Chapter 5

Week 6: October 1 and 3

Bivariate regression

Required Readings:

- Brown, Chapter 6

Week 7: October 8 and 10

Multiple regression

Required Readings:

- Brown, Chapter 7

Week 8: October 15 and 17

Dichotomous variables and interactions

Required Readings:

- Brown, Chapter 8

Week 9: October 22 and 24

Making inferences, statistical significance, and the Central Limit Theorem

Required Readings:

- Brown, Chapter 9

Week 10: October 29 and 31

Counterfactuals and causal inference

Week 11: November 5 and 7

Data construction

Week 12: November 12 and 14

Post-estimation and regression diagnostics

Required Readings:

- Brown, Chapter 10

Week 13: NO CLASS (Fall/Thanksgiving Break)

Week 14: November 26 and 28

Logistic regression

Required Readings:

- Brown, Chapter 11

Week 15: December 3 and 5

Predicted probabilities and simulating quantities of interest

Required Readings:

- Browse through the Zelig website: http://docs.zeligproject.org/articles/quickstart.html

Week 16: December 10 and 12

Course review week will be devoted to doing exercises in class that will help prepare for the final.

SYLLABUS CHANGES

I reserve the right to make changes to the syllabus during the course of the semester as needed and will make the most updated copy available to you and announce said changes during class.

Last updated: August 27, 2018

UNIVERSITY-MANDATED STATEMENTS

Accommodation for disabilities

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website. Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition or injury, see Temporary Medical Conditions under the Students tab on the Disability Services website.

Classroom behavior

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the policies on classroom behavior and the Student Code of Conduct.

Honor code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu; 303-492-5550). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the Honor Code Office website.

Sexual misconduct, discrimination, harassment and/or related retaliation

The University of Colorado Boulder (CU Boulder) is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (including sexual assault, exploitation, harassment, dating or domestic violence, and stalking), discrimination, and harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or cureport@colorado.edu. Information about the OIEC, university policies, anonymous reporting, and the campus resources can be found on the OIEC website. Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.

Religious holidays

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, I will try to accommodate your requests, but you must contact me early in the semester. See the campus policy regarding religious observances for full details.