

Introduction to Quantitative Political Research

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University of North Texas
Department of Political Science

August 30th, 2022

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- This course introduces students to the logic of causal inference and the tools social scientists use to study social, political, and economic phenomena
 - We will focus primarily on quantitative approaches to the study of politics with an emphasis on application, causal reasoning, and prediction

Why Take this Course?

PSCI 3300
Political
Science
Research
Methods

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Introduction

Why Take
this Course?

Teaching
Philosophy

Course
Structure

Required
Course
Materials

- PSCI 3300 is a required course for political science majors so you'll have to take it at some point

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 - Contemporary political science is a primarily quantitative field, so understanding the tools of the trade will help you understand and critique the things you read in your other classes

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- I will not require you to laugh at my jokes

Teaching Philosophy

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- Math for the sake of math is an unfortunately common but largely unproductive way to teach quantitative social science

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- Though there is some basic statistics required, that means less of this

$$\text{Normal}(y|\mu, \sigma) = \frac{1}{\sqrt{2\pi} \sigma} \exp \left(-\frac{1}{2} \left(\frac{y - \mu}{\sigma} \right)^2 \right)$$

- And more hands-on stuff like this

```
## Simulate 10,000 random draws from a standard normal distribution  
std_norm <- rnorm(n = 10e3, mean = 0, sd = 1)
```

```
## Print a summary  
summary(std_norm)
```

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
-4.28931	-0.64102	0.01316	0.01795	0.68457	3.89919

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- **Class Meetings**

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- To get hands on experience writing R code, manipulating and modeling data, and thinking through the logic of cause and effect, you will complete a series of problem sets that ask you to apply the topics we cover in class using real data.

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● Problem Sets

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- *You must demonstrate that you made a good faith effort to work through each question in order to receive any partial credit for incorrect answers*

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 - Andrew Gelman, Jennifer Hill, and Aki Vehtari. *Regression and Other Stories*. Cambridge University Press, 2021. ISBN: 9781107676510

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- All additional readings for the course and various instructional resources for applied statistics and programming in R are provided via the course's Canvas page

Technical Requirements

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- If you do not have access to a personal computer that meets the minimum requirements necessary to run R, you can access both R and RStudio from computers on the UNT campus

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- The computers in the political science lab in Wooten Hall 173 should have the most recent version of R, RStudio, and RTools

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- If you expect to have difficulty meeting the technical requirements for this course you need to let me know immediately

Getting Started with R

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- We will also make use of the probabilistic programming language Stan via it's R interfaces **brms** and **rstanarm** during parts of this course

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- If you have difficulty getting these installed on your personal computer please come by my office hours or make an appointment for assistance