

Y395: QUANTITATIVE POLITICAL ANALYSIS Indiana University at Northwest

Instructor: Salih Yasun	Time: MW 11:30-12.45PM
Email: syasun@indiana.edu	Office Hours: TBA

Course Description: In this course, students will simultaneously learn about statistics as a science and how to use statistical software in applied settings. We will have both lectures and labs. During the lectures we will cover theories, whereas during the labs we will have hands on practice with the state of art tools. While the course has no formal pre-requirements, students are required to bring a working laptop with internet access and software installed to the class.

Course Objectives: The key for success in this course is spending time with the material. We will focus on the design, descriptive and inferential statistics. Students will be able to understand the basic statistical concepts such as a variable, hypothesis testing, quantile, mean, standard deviation, Chi square tests and OLS Regression. Students will be able to apply such concepts to their own social science research through the appropriate software. At the end of this course students will be equipped with the knowledge to interpret and practice quantitative social science research. If the time permits, we may also engage in more advanced applied concepts, such as making maps or preparing CV in LaTeX.

Required Books: *Statistical Methods for the Social Sciences (5th edition)*, by Alan Agresti and Barbara Finlay. Pearson, 2017. ISBN: 013450710X

Discovering Statistics Using R, by Andy Field, Jeremy Miles and Zoe Field. SAGE Publications Ltd; 1st edition, 2012. ISBN: 1446200450

Software: [R Studio](#), [Overleaf](#) - [Become a member](#).

Course Requirements: Assignments (20%)

A mid-term exam (25%)

A final exam (40%)

A final presentation for student project (15%):

Students are required to work on a project for this course, which can relate to a paper that they will be working on for another class. The project should have a research question, descriptive data analysis and statistical inference. Students are **highly recommended** to meet with the instructor to discuss their project beforehand. If not sure about a project, students should also consult the author.

Grading Scale: A+ = 100; A = 94-99; A- = 90-93; B+ = 87-89; B = 83-86; B- = 80-82; C+ = 77-79; C = 73-76; C- = 70-72; D+ = 67-69; D = 63-66; D- = 60-62; F = 0-59.

Late Work Policy: Work turned in after the deadline will receive a maximum of 90% of the prescribed grade for that assignment. From two until five days it will receive a maximum of 50% of the grade. A grade not turned in five days after the deadline will receive 0% of the prescribed grade for that assignment.

COVID-19 Note: If students are not able to complete their assignment because they are sick due to COVID-19 or because they take care of family members are sick, they should inform the instructor as soon as possible. I will make the necessary arrangements so that students will not lose points due to the health restrictions.

Plagiarism: All work should be your original product, unless explicitly noted otherwise. Any materials you reference or take from others should be properly cited. Cheating, plagiarism, or fabrication in any form will not be tolerated, regardless of any justification. For more detailed information see the Student Responsibilities section of [the Code of Student Rights, Responsibilities, and Conduct](#). Academic misconduct will not be tolerated. The minimum consequence is failing the assignment. In a case of more serious offense, a student may fail the course. Students should NOT present work from other courses in this class (i.e., using pieces of previous papers you have done is considered plagiarism). I may use the services of [Turnitin.com](#) to check for originality of your written work.

Counseling and Psychological Services: For information about services offered to students by CAPS: <https://www.iun.edu/counseling-services/>

Students with Disabilities: Indiana University is committed to creating a learning environment and academic community that promotes educational opportunities for all individuals, including those with disabilities. Course directors are asked to make reasonable accommodations, upon request by the student or the university, for such disabilities. It is the responsibility of students with documented physical or learning disabilities seeking accommodation to notify their course directors and the relevant campus office that deals with such cases in a timely manner concerning the need for such accommodation. Indiana University will make reasonable accommodations for access to programs, services, and facilities as outlined by applicable state and federal laws. Student Support Services location: HH 239, (219) 980-6798, Student Support Services online: <http://www.iun.edu/student-support/index.htm>

IU's Sexual Misconduct Policy: As your instructor, one of my responsibilities is to create a positive learning environment for all students. IU policy prohibits sexual misconduct in any form, including sexual harassment, sexual assault, stalking, sexual exploitation, and dating and domestic violence. If you have experienced sexual misconduct, or know someone who has, the University can help. If you are seeking help and would like to speak to someone confidentially, you can make an appointment with the Office of Counseling Services at 219-980-6741. It is also important that you know that University policy requires me to share certain information brought to my attention about potential sexual misconduct, with the campus Deputy Sexual Misconduct Title IX Coordinator or the University Sexual Misconduct Title IX Coordinator. In that event, those individuals will work to ensure that appropriate measures are taken and resources are made available. Protecting student privacy is of utmost concern, and information will only be shared with those that need to know to ensure the University can respond and assist. I encourage you to visit <https://stopsexualviolence.iu.edu> to learn more.

Online Course Materials: The faculty member teaching this course holds the exclusive right to distribute, modify, post, and reproduce course materials, including all written materials, R Codes, study guides, lectures, assignments, exercises, and exams. While you are permitted to take notes on the online materials and lectures posted for this course for your personal use, you are not permitted to re-post in another forum, distribute, or reproduce content from this course without the express written permission of the faculty member. Any violation of this course rule will be reported to the appropriate university offices and officials, including to the Dean of Students as academic misconduct.

Class Schedule and Assignments

Week 1: Introduction

Monday, August 22nd: Read the syllabus in its entirety, answer any questions.

- Downloading R Studio
- Setting up Overleaf accounts for LaTeX
- Practice writing in LaTeX

Wednesday, August 24th: Chapter 1, Introduction to R Studio and LaTeX

- Introduction (A&F Ch:1), 55 minutes
- Practice R 20 minutes: Introduction, Running Basic Commands. Reference: Field et al. p.73-85

Week 2 (August 29th-31st): Chapter 2: Sampling and Measurement; Manipulating Data

- Chapter 2 (A&F)
- Practice Data Manipulation in R Studio

Week 3 (September 5th-7th): Chapter 3: Descriptive Statistics, Learn how to use Ggplot2

- Chapter 3 (A&F)
- Practice Descriptive Inference in R
- Learn how to Import Figures to LaTeX

Week 4 (September 12th-14th): Chapter 4: Probability Distributions

- Chapter 4 (A&F)
- Construct Distributions in R

Week 5 (September 19th-21st): Chapter 5: Statistical Inference Estimation

- Chapter 5 (A&F)
- Lab: TBA

Week 6 (September 26th-28th): Chapter 6: Statistical Inference: Significance Tests

- Chapter 6 (A&F)
- Lab: TBA

Week 7 (October 3th-5th): Chapter 7: Comparison of Two Groups

- Chapter 7 (A&F)
- Lab: TBA

Week 8: Midterm Exam

- **Monday, October 10th:** Exam Review
- **Wednesday, October 12th:** Exam.

Week 9: Chapter 8: Analyzing Association between Two Categorical Variables

- Chapter 8 (A%F)
- Lab: TBA

Week 10: Chapter 9: Linear Regression and Correlation

- Chapter 9 (A%F)
- Lab: TBA

Week 11: Chapter 10: Introduction to Multivariate Relationships

- Chapter 10 (A%F)
- Lab: TBA

Week 12: Chapter 11: Multiple Regression and Correlation

- Chapter 11 (A%F)
- Lab: TBA

Week 13: Chapter 12: Regression with Categorical Predictors: Analysis of Variance Methods

- Chapter 12 (A%F)
- Lab: TBA

Week 14: Thanksgiving Break**Week 15: Chapter 13: Multiple Regression with Quantitative and Categorical Predictors**

- Chapter 13 (A%F)
- Lab: TBA

Week 16: Student Presentations

Final Exam: DATE TBA.