Y395: Quantitative Political Analysis
Indiana University at Northwest

Instructor:	Salih Yasun	**Time:** MW 11:30-12.45PM	
Email:	syasun@indiana.edu	**Office Hours:** 1-2PM (C.A.S.-2081)	

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, decriptive 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
Data Analysis for Social Science: A Friendly and Practical Introduction, by Elena Llaudet and Kosuke Imai. Princeton University Press; 1st edition, 2022. ISBN: 0691199426

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 note 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 and 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, January 9th: Read the syllabus in its entirety, answer any questions.

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

Wednesday, January 11th: Chapter 1, Introduction to R Studio and LaTeX

- Introduction (A&F Ch:1), 55 minutes
- Practice R 20 minutes: Introduction, Running Basic Commands.

Week 2 (January 16th-18th): Chapter 2: Sampling and Measurement; Manipulating Data

- Chapter 2 (A%F)
- Chapter 1 Llaudet and Imai
- Practice Data Manipulation in R Studio

Week 3 (January 23rd-25th): Chapter 2 Cont'd, Chapter 3: Descriptive Statistics

- Chapter 2 and 3 (A%F)
- Chapter 2 and 3, LLaudet and Imai
- Ggplot worksheet
- Learn how to Import Figures to LaTeX

Week 4: Descriptive Statistics Cont'd, Ggplot

- Chapter 4 (A%F)
- Chapter 6, Llaudet and Imai
- Construct Distributions in R

Week 5 (January 30th-February 1st): Chapter 4: Probability Distributions, Ggplot

- Chapter 4 (A%F)

Week 6 (February 6th-8th): Chapter 5: Statistical Inference Estimation

- Chapter 5 (A%F)

Week 7 (February 13th-15th): Chapter 6: Statistical Inference: Significance Tests

- Chapter 6 (A%F)
- Chapter 7, Llaudet and Imai

Week 8: Statistical Inference: Significance Tests

- Chapter 6 (A%F)

- Lab: TBA

Week 9 (March 6th-8th): Midterm Exam

- Monday: Exam Review

- Wednesday: Exam

Week 10 (March 13-15th): Spring Break

Week 11 (March 20-22nd): Chapter 9: Linear Regression and Correlation

- Chapter 9 (A%F)

- Chapters 4 and 5,Llaudet and Imai

Week 12 (March 27th-29th): Chapter 7

- Chapter 7 (A%F)

- Lab: TBA

Week 13: (April 3rd-5th) Chapter 8

- Chapter 8 (A%F)

- Lab: TBA

Week 14: (April 10th-12th)Chapter 10

- Chapter 10 (A%F)

- Lab: TBA

Week 15 (April 17th-19th): Chapter 11: Multiple Regression

- Chapter 11 (A%F)

- Lab: TBA

Week 16 (April 24th-26th): Exam Preparation and Student Presentations

Final Exam: May 1st, 11.30AM