

Statistical Methods for Political Science
POLS 3032
Spring 2020

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Office Hours

Tuesday 11:00-12:00
Wednesday 1:00-3:00
Thursday 2:00-4:00
and by appointment

Class Time and Location

Tuesday and Thursday, 12:30-1:45
Brewster D-205
CRN 33171

Course Description

This course is an introduction to basic statistics for political science. Students will learn to evaluate hypotheses through the use of logic, reasoning, and basic statistics. The course will cover the importance of scientific inquiry and the steps necessary to engage in quantitative analysis. Students will get hands-on experience of political analysis through in-class demonstrations, weekly assignments, and a final project.

This course offers skills that are central to the understanding, appreciation, and critique of political science research. Students will, after completion of this course, will be well prepared to conduct their own research of a quantitative nature. The software for this class will be Stata (available in the Kim Lab). This is also available for lease or purchase from the Stata website - see the link below.

Course Goals

The goal of this course is to familiarize students with the basic statistical techniques for testing hypotheses empirically. Students will become more employable as a byproduct of taking this course. Understanding data collection and being able to conduct basic data analysis using a statistical package, such as Stata, are skills that will translate readily to the work environment outside the classroom. Jobs in politics, marketing, public relations, business, etc. often require analytical skills such as the ones taught in this course. Statistics is both a spectator sport and a participatory sport. You will learn how to be wise consumers and producers of statistics. Students will be expected to be able to add, subtract, multiply, and divide using a basic calculator before the class begins. No other math knowledge is a prerequisite for this class.

Learning Objectives

This course will prepare students to:

- understand the basic concepts of statistics
- interpret statistical analyses
- organize, manage, and present data
- use a wide variety of statistical methods
- know which statistical methods are appropriate
- use statistical software for data analysis

- communicate effectively the results of statistical analysis
- carry out projects that make use of statistical analyses
- write up projects from statement of problem through conclusion

Readings

Aycock, Alan C. 2018. *A Gentle Introduction to Stata*, Sixth Edition. College Station, TX: Stata Press.

Lane, David M. 2013. *Introduction to Statistics: An Interactive e-book*.

(accessed January 2, 2020)

Style Manual for Political Science. 2006. Washington D.C.: American Political Science Association.

(accessed January 2, 2020).

If you wish to purchase or lease Stata, here is the [link](#). Remember, you can access Stata in the Kim Lab. Stata/IC should be more than adequate.

Grading

Homework Assignments	20%	
Quizzes	15%	
Exam I	20%	March 5, 2020
Exam II	20%	May 5, 2020 (11:00 AM – 1:30 PM)
Final Project	25%	April 28, 2020

Grading System

93 – 100	A
90 – 92	A-
88 – 89	B+
83 – 87	B
80 – 82	B-
78 – 79	C+
73 – 77	C
70 – 72	C-
68 – 69	D+
63 – 67	D
60 – 62	D-
Less than 60	F

Homework Assignments

There will be frequent assignments. These will involve problems and writing assignments. If there are multiple pages, please staple the pages together. Some of these assignments will require that you perform calculations by hand. Other assignments will require that you use a statistical package to perform the calculations. All homework assignments are due at the beginning of class. You should be prepared to discuss the homework assignments during class. I will feel comfortable calling upon you, regardless of whether you have your hand raised. All work that you turn in, other than in-class assignments, must be typed.

Quizzes

Quizzes will be in-class and unannounced. They may be given at the beginning, the middle, or the end of class. If you are not there for the start of a quiz, it will count as a missed quiz. The highest 75% of the quizzes (however many there will be is to be determined) will count. So, if there are four quizzes, the highest three will count. If there are eight, the highest 6 will count.

Examinations

There will be two examinations over the course of the term. These are designed to test your comprehension of material covered in readings, lectures, and homework assignments. These examinations will be closed-note

and closed-book. You may bring a calculator for these examinations. Needless to say, you may **NOT** use a tablet computer or a smart phone (or a dumb phone) as your calculator.

Final Data Project

Each student is expected to produce a final data project. Students will be required to generate and test a hypothesis. Data are to be analyzed and a final data report is to be produced that will present findings. The final report will employ both descriptive and advanced statistical methods learned in class.

I expect that you will be able to provide me with a listing of your hypotheses and the variables available to test them very early in the semester. Nonetheless, you are required to have these lists to me no later than 5 March. You will turn in a document that specifically details your hypothesis statements. Attached to each hypothesis statement will be a listing of the variables used, the coding, and frequencies. You are to also provide me the full name of the dataset and the source of the data. If you do any recodes, you must provide the crosstabulation of the original with the new coding. This means that if you do any recodes, you must create a new variable so that I can look at the original and the new version. Also, for each variable you will identify the level of measurement. This must be typed (or, of course, word processed). You are required to meet with me at least once before you turn in the hypothesis statements. You must turn in a copy of your dataset at this time. This dataset should be named Last name First Name.

Aside from writing up the final project, you will make a presentation to me during the last week of the semester. Prepare for this like you are making a report to an employer who will be evaluating the overall quality of the work. You are trying to convince this employer that you are worth your salary.

You are to include a listing of hypotheses and the logic of each of these hypotheses, a description of the data, how each variable is operationalized, a justification for the statistical techniques, a discussion of the results of your statistical analysis, a conclusion, and references. Any tables or figures will be appended to the end of the paper. In the text of the paper, simply mark the place of the table.

Every effort will be made to get graded material back to you by the next class session. All students are expected to attend class. I expect all students have completed the assigned reading by class. As this is a hands-on class, much of class time will be devoted to working on the material, as opposed to simply lecturing about it.

Academic Integrity: The standard plagiarism and academic integrity rules apply, i.e. all the materials you submit in paper or online must be the results of your own individual work. Any signs of plagiarism will be taken very seriously. The university code of academic integrity will be strictly enforced in this course. According to the East Carolina University Honor Code, violations of academic integrity include the following:

- *Cheating.* Unauthorized aid or assistance or the giving or receiving of unfair advantage on any form of academic work.
- *Plagiarism.* Copying the language, structure, ideas, and/or thoughts of another and adopting same as one's own original work. DO NOT submit someone else's homework.
- *Falsification.* Statement of any untruth, either spoken or written, regarding any circumstances relative to academic work.
- *Attempts.* Attempting any act that if completed would constitute an academic integrity violation as defined herein.

For more information about university policies concerning academic integrity, please visit the web at <http://www.ecu.edu/cs-acad/fsonline/customcf/currentfacultymanual/part6section2.pdf>. If you violate the Honor Code you will be reported to the Academic Integrity Board for disciplinary action. The penalties for violating

the university code of academic integrity *range* from having assigned an F for that assignment to more stringent measures such as failure, assigned grade of XF on the transcript, in the course and/or expulsion from the university.

Students with Disabilities

East Carolina University seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must be registered with the Department for Disability Support Services located in Slay 138. Phone number: 252-737-1016.

Class Decorum

I expect all students to exhibit a high level of courtesy toward each other. Please arrive on time and stay for the entire class. While I endorse the reading of newspapers and the listening to music, please refrain from doing either in class. If you make use of a computer in class, either a laptop or a tablet, please make certain that it is only for class material. In fact, you would probably be better served to take your notes by hand rather than typing them during class. Also, there is NO excuse for texting, Facebooking, and the like during class time. Please be respectful while other students are asking or answering a question. Treat those individuals as you would wish to be treated. The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

Campus Emergencies and Severe Weather: In case of campus wide emergencies, you may obtain information about changes in the University class schedule by calling 252 328-0062.

ECU Alert: In addition, in case of adverse weather or other campus emergencies you may consult <http://www.ecu.edu/alert/> for information.

If and when face-to-face classes are suspended, you will receive an email from me that details how we will communicate, where you can locate course information, and what you can expect during this time period.

Course Schedule

Week 1 Introduction and Review of the Nature of Scientific Inquiry <ul style="list-style-type: none">● Discussion of syllabus● Discussion of texts● Review of scientific method	Readings <ul style="list-style-type: none">● Lane, chapters 1 and 6● Aycock, chapter 1
Week 2 Hypotheses and Data Collection <ul style="list-style-type: none">● Hypothesis Construction● Operationalization of Variables● Levels of Measurement● Data Collection and Entry● Codebooks and Cleaning Data	Readings <ul style="list-style-type: none">● Aycock, chapter 2

<p>Weeks 3 & 4 Data collection, entry, and do-files</p> <ul style="list-style-type: none"> ● Understanding Codebooks ● Recoding Data ● Frequency Distributions ● do-files 	<p>Readings</p> <ul style="list-style-type: none"> ● Aycock, chapters 3 and 4
<p>Week 5 Measures of Central Tendency and Dispersion</p>	<p>Readings</p> <ul style="list-style-type: none"> ● Lane, chapter 3 ● Aycock, chapter 5
<p>Week 6 The Normal Distribution</p>	<p>Readings</p> <ul style="list-style-type: none"> ● Lane, chapter 7 ● Aycock, chapter 6
<p>Week 7 Crosstabulation and Measures of Association</p>	<p>Readings</p> <ul style="list-style-type: none"> ● Lane, chapter 17 ● Aycock, chapter 6
<p>Week 8 Review and exam</p>	
<p>Week 9 Spring Break</p>	
<p>Week 10 Estimation and the Logic of Hypothesis Testing</p>	<p>Readings</p> <ul style="list-style-type: none"> ● Lane, chapters 10 and 11 ● Aycock, chapter 7
<p>Week 11 Testing Means/Analysis of Variance</p>	<p>Readings</p> <ul style="list-style-type: none"> ● Lane, chapters 12 and 15 ● Aycock, chapters 7 and 9
<p>Week 12 Interpreting Ordinary Least Squares Regression (aka, OLS and Regression)</p>	<p>Readings</p> <ul style="list-style-type: none"> ● Lane, chapter 14 ● Aycock, chapter 8
<p>Week 13 Running Ordinary Least Squares Regression</p>	<p>Readings</p> <ul style="list-style-type: none"> ● Lane, chapter 14, ● Aycock, chapter 10

Week 14 Catch-up and review for Final Exam	
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Week 15 Final Project Meetings	Individual Meetings with Professor
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