

NORTHEASTERN UNIVERSITY  
DEPARTMENT OF POLITICAL SCIENCE  
**POLS 2400: QUANTITATIVE TECHNIQUES**  
Monday/Wednesday/Thursday 4:35-5:40 pm  
Ryder Hall 265  
FALL 2018

### **INSTRUCTOR INFORMATION**

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Office: Renaissance Park 915  
Office hours: Wed/Thu 03:00 pm-4:00 pm, and by appointment

### **COURSE DESCRIPTION**

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The purpose of this course is to prepare students to analyze political science issues using statistics. The main topics and methods covered in this course include descriptive statistics, basic probability, binomial and normal probability distributions, hypothesis testing, differences-between-groups tests, correlation, linear regression, and multiple regressions. We also examine how to generate and interpret statistical analyses through Microsoft Excel and SPSS software. By the conclusion of the course students should be able to pose specific research questions, construct a valid and reliable research design, gather empirical data, and confirm or reject their hypotheses. This course will provide students with skills that can be extended beyond the scope of this course and into their professional life after graduation from Northeastern.

This course begins at an elementary level, assuming no prior knowledge of statistics, and ends with advanced techniques for running and interpreting multivariate analysis. Students will be given the opportunity to progress rapidly in their familiarity with a variety of quantitative methods for describing distributions and for analyzing the nature, significance, and strength of relationships between variables.

### **COURSE REQUIREMENTS**

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Completing ALL the readings and regular attendance will be required of all students. Active participation in class discussions is very important for students to succeed in this course. Students should make special efforts to arrive on time. They should inform the instructor ahead of time if they need to be late or leave before the class ends. Attendance is mandatory and will be taken at every class. Unexcused absences will result in a lowering of final grade.

Students are also required to use Blackboard online course site. Blackboard will be used for additional materials, assignments, and grading. Students should inform the instructor immediately if they have problems with using Blackboard.

**Course Grading Criteria:**

<b>Assignment</b>	<b>Weight</b>	<b>Note</b>
Final exam	20%	TBD
Midterm exam	20%	Oct. 18
Final project	20%	5-page report (NOT including tables)
Weekly Assignment	30%	10 assignments (3 points each)
Attendance & Participation	10%	

**Exams**

There will be a midterm and the final examination. Exams are administered in class and will cover all course materials up to the exam day. Both exams will be open notes when it comes to statistical formulas, therefore it is important for students to take excellent notes and organize all handouts distributed in class. Exams will require students to do arithmetic calculations using Microsoft Excel, make and interpret SPSS outputs, and draw conclusions. Make-up exams will be granted only in case of dire and documented personal emergencies.

**Final Project**

A final project will be assigned to wrap up the course. Students create a research hypothesis, find data, compile a dataset, and test their hypothesis using SPSS. More details will be provided later in the semester.

**Weekly Assignment**

Homework assignments will be based on exercises from the textbook. All assignments and due dates will be announced in advance. Since homework will often be reviewed in class on the day when they are due, late assignments will be penalized 50%.

Final grade will be based on the quality of assignments listed above. It will be determined using the following percentage scale:

A = 100 – 93

A- = 92 – 90

B<sup>+</sup> = 89 – 87

B = 86 – 83

B- = 82 – 80

C<sup>+</sup> = 79 – 77

C = 76 – 73

C- = 72 – 70

D<sup>+</sup> = 69 – 67

D = 66 – 63

D- = 62 – 60

F ≤ 60

## **ACCOMMODATIONS FOR STUDENTS WITH DISABILITY/ ADA**

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Northeastern is fully committed to creating a community characterized by inclusion and diversity. As part of this commitment, it upholds the American with Disabilities Act as Amended of 2008 and the American with Disabilities Act and Section 504 of Rehabilitation Act, referred to collectively as the ADA. The ADA requires Northeastern to provide reasonable accommodations to students with disabilities unless doing so would create an undue hardship, compromise the health and safety of members of the university community, or fundamentally alter the nature of the university's employment mission.

If you are a student who requires accommodations in compliance with the ADA, please consult with me at the beginning of the semester. As your instructor, I am required by law to provide "reasonable accommodation" to students with disabilities, so as not to discriminate on the basis of that disability. Your responsibility is to inform me of the disability at the beginning of the semester and provide me with documentation authorizing the specific accommodation. Please consult the Northeastern University Disability Resource Center, located at 20 Dodge Hall, 617.373.2675, or <http://www.northeastern.edu/drc>, for verification and implementation of accommodations to ensure equal opportunity in all courses, programs, and activities.

## **DEPARTMENT OF POLITICAL SCIENCE POLICY ON ACADEMIC HONESTY FOR UNDERGRADUATES**

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The Department of Political Science takes very seriously the issue of academic honesty, and as set forth in Northeastern University's principles on Academic Honesty and Integrity Policy (see <http://www.northeastern.edu/osccr/academic-integrity-policy/>) Any student who appears to violate these principles will fail the course and will be put on academic probation. Individual faculty, with the support of the Department, can impose harsher penalties and as they deem necessary. Cheating is one example of academic dishonesty, and which is defined as using or attempting to use unauthorized materials, information, or study aids in any academic exercise. When completing any academic assignment, a student shall rely on his or her own mastery of the subject. Cheating includes plagiarism, which is defined as using as one's own the words, ideas, data, code, or other original academic material of another without providing proper citation or attribution. Plagiarism can apply to any assignment, either final or drafted copies, and it can occur either accidentally or deliberately. Claiming that one has "forgotten" to document ideas or material taken from another source does not exempt one from plagiarizing. Your instructor will clarify specific guidelines on fair use of material for this class.

## **TITLE IX OF THE EDUCATION AMENDMENTS**

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Northeastern is committed to providing equal opportunity to its students and employees, and to eliminating discrimination when it occurs. In furtherance of this commitment, the University strictly prohibits discrimination or harassment on the basis of race, color, religion, religious creed, genetic information, sex, gender identity, sexual orientation, age, national origin, ancestry, veteran, or disability status. The Northeastern University Title IX policy articulates how the University will respond to reported allegations of sexual harassment involving students, including sexual assault, and provides a consolidated statement of the rights and responsibilities under University policies and Title IX, as amended by the Violence Against Women Reauthorization Act of 2013.

## ELECTRONICS AND COURTESY

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The use of laptop computers will be permitted only for the use of SPSS and Microsoft Excel during class meetings. Their use for anything other than class purposes will not be allowed. No e-mail/Facebook/text message checking, net surfing, etc. during class time.

## TEXTBOOK

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Theresa Marchant-Shapiro, *Statistics for Political Analysis: Understanding the Numbers* (Sage Publications, 2015).

Required Software (accessible through MyNortheastern):

- Microsoft Excel
- SPSS

## COURSE SCHEDULE

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Week	Date	Topic	Reading	Assignment
1	Sep 05	Course introduction		Assignment #1 YT 1.1-2 (p.15)
	Sep 06	The Political use of numbers - Variables/statistical methods	Ch. 1	
2	Sep 10	Measurement - Level of measurement (Excel)	Ch. 2	Assignment #2 YT 2.1-3 (p.48-9)
	Sep 12	Measurement - Level of measurement (Excel/SPSS)	Ch. 2	
	Sep 13	Measurement - Level of measurement (SPSS)	Ch. 2	
3	Sep 17	Central Tendency - Mean/Median/Mode (Excel)	Ch. 3	Assignment #3 YT 3.1-2 (p.72-3)
	Sep 19	Central Tendency - Descriptive Statistics (Excel/SPSS)	Ch. 3	
	Sep 20	Central Tendency - Descriptive Statistics (SPSS)	Ch. 3	

	Sep 24	Measures of Dispersion - Standard Deviation/Variance (Excel)	Ch. 4	
4	Sep 26	Measures of Dispersion - Standard Deviation/Variance (Excel/SPSS)	Ch. 4	Assignment #4 YT 4.1-3 (p.106-8)
	Sep 27	Measures of Dispersion - Transforming Variables (SPSS)	Ch. 4	
	Oct 01	Continuous Probability - Normal curve/Z-scores (Excel)	Ch. 5	
5	Oct 03	Continuous Probability - Normal curve/Z-scores (Excel/SPSS)	Ch. 5	Assignment #5 YT 5.1-2 (p. 142-3)
	Oct 04	Continuous Probability - Normal curve/Z-scores (SPSS)	Ch. 5	
	Oct 08	<b>Columbus Day</b>	No Class	
6	Oct 10	Means Testing - Errors/ t-test/Confidence Intervals (Excel)	Ch. 6	Assignment #6 YT 6.1 (p. 176-7)
	Oct 11	Means Testing - Errors/ t-test/Confidence Intervals (SPSS)	Ch. 6	
	Oct 15	Means Testing - Errors/ t-test/Confidence Intervals (SPSS)	Ch. 6	
7	Oct 17	Review		
	Oct 18	<b>Midterm</b>		
	Oct 22	Hypothesis Testing - ANOVA (Excel)	Ch. 7	
8	Oct 24	Hypothesis Testing - ANOVA (Excel)	Ch. 8	Assignment #7 YT 7.1-2 (P.242-3)
	Oct 25	Chi-Square and Cramer's V (Excel/SPSS)	Ch. 8	
	Oct 29	Chi-Square and Cramer's V (Excel/SPSS)	Ch. 9	
9	Nov 31	Measures of Association and Correlation (Excel/SPSS)	Ch. 10	Assignment #8 YT 9.1 (p.270-1)
	Nov 01	Bivariate Regression (Excel)	Ch. 12	
	Nov 05	Multivariate Relationships (SPSS)	Ch. 13	
10	Nov 07	<b>Conference Attendance (NPSA)</b>	No class	Assignment #9 Final Project Proposal (Due: Nov.12)
	Nov 08	<b>Conference Attendance (NPSA)</b>	No class	

	Nov 12	<b>Veterans Day</b>	No Class	
11	Nov 14	Multivariate Regression (SPSS)	Ch. 13	Assignment #10 YT 12.1-3 (p. 371-2)
	Nov 15	<b>Dialogue of Civilization</b>	No Class	
	Nov 19	Multivariate Regression (SPSS) Pivot Table (Excel)	Ch. 13	
12	Nov 21	<b>Thanksgiving Recess</b>	No class	
	Nov 22	<b>Thanksgiving Recess</b>	No class	
	Nov 26	Other Regression Methods (SPSS) Pivot Table (Excel)	Ch. 13	
13	Nov 28	Final Project Presentation/ Discussion		
	Nov 29	Final Project Presentation/ Discussion		
	Dec 03	Final Project Presentation/ Discussion		
14	Dec 05	Review		Final Project Submission (December 10)
	Dec 06	<b>Final Exam (Regular Class Time)</b>		