

IPOL 320: Quantitative Methods for International Politics
Spring 2015

Professor Information

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Office: ICC 305-N

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Office Hours: After Class

Lecture

Lectures: M-TH 10:45-12:45 p.m.

Car Barn 202

The goal of this course is to train students to perform and analyze quantitative research in International Relations and Comparative Politics. By the end of this course, students should be able to read and understand the quantitative research found in reports and articles. Students should also be able to formulate hypotheses, design a research project, and use the correct statistical method(s) to test their hypotheses. All students will work with real data using a statistical package (Stata) and learn to manage, graph, display, and analyze different types of data.

This course is divided into three parts: 1.) definition of key terms, 2.) descriptive statistics, and 3.) inferential statistics. The first week will focus on defining and discussing important terms that will allow students to understand how to plan and conduct a research project. The remaining weeks will involve understanding different statistical tools that are used for analyzing important and interesting research questions. Unlike other classes, this class will focus on quantitative methodology, which means that over 95% of this course involves math and correctly interpreting numbers. At the end of the semester, students should be able to:

1. Articulate an appreciation for the diverse application of statistics and its relevance to the field of political science and international politics.
2. Demonstrate conceptual understanding of fundamental statistical ideas such as variability, distribution, association, causation, confidence, and significance.
3. Show introductory level practical ability to choose, generate, and properly interpret appropriate descriptive and inferential methods.
4. Exhibit critical thinking about statistics (e.g., demonstrate the ability to assess the 'validity' of statistical arguments in the popular press and scholarly publications).

5. Demonstrate the ability to effectively communicate statistical ideas (and thus be able to knowledgeably participate in social debates).
6. Demonstrate introductory level experience by using Stata, a statistical software widely used in the social sciences, to perform data analysis.

Required Materials:

The following materials are required for this course. Students are expected to bring the following to each class each week:

- Scientific Calculator. Students **MUST** bring their calculators to every lecture and to exams. The use of a calculator on your phone and/or tablet is unacceptable.
- A Course Packet that will be available at the Bookstore.

Recommended Text

There is not a required text for this course, however, the following text is **recommended** for those students who would like extra problems or more detail on the materials covered in lecture.

- Agresti, Alan and Barbara Finlay 2008. *Statistical Methods for the Social Sciences, 4th Edition* Pearson

Stata

In this course, we will be using a statistical software called Stata. Stata is now available to ALL students. Students must use **Stata 13**. Students can have access to Stata in ONE OF TWO ways:

1. Students can pick up discs and registration information from the UIS desk located on the ground floor of St. Mary's (right outside of St. Mary's room G40)
2. Students can download the software online by visiting the following website: <http://georgetown.onthehub.com/>. Please sign in using your netid and password, and download Stata 13. Once you have downloaded Stata 13, go back to the Georgetown.onthehub website, sign in, click on "Your account/Orders" located on the very top of the page. Select Stata 13, and you should see the information you need to register your product.

Academic Integrity

Students should familiarize themselves with the following University policies:

- Georgetown's honor system <http://bulletin.georgetown.edu/regulations6.html>
- Plagiarism policy <http://gervaseprograms.georgetown.edu/honor/system/53519.html>

Grades

The final course grade will be evaluated on quizzes, a midterm, class participation/attendance, lab exercises, and a final exam. The grade breakup is as follows:

- Quizzes–20%
- Midterm–20%
- Lab Exercises–30%
- Final Exam–30%

Quizzes:

There are 10 quizzes throughout the semester. Each quiz consists of 10 questions (each worth 1 point). All of the quizzes are on the OLI course website. Students MUST submit their answers online by Sunday at 11:59 p.m. on the deadlines discussed below. Late quizzes WILL NOT be accepted. Students are encouraged to check their submission before the deadline to ensure there was not a technical mistake. If students come across a mistake, they can access the problem sets on Blackboard and email their TAs (and copy me) with their answers for each question. The TA will grade the Quiz as long as the email was sent BEFORE the deadline. These quizzes are designed to help students prepare for the midterm and final exam. Students will be able to check their answers and review each quiz after the deadline has passed. Quizzes are worth 20% of your total grade. The updated due dates for each quiz can be found on OLI. Note: I will change the due dates if we are running behind on OLI.

1. Quiz 1–Introduction to Key Terms–June 7th
2. Quiz 2–Descriptive Statistics–June 7th
3. Quiz 3–Descriptives and Probability–June 14th
4. Quiz 4–Normal Curve and Confidence Interval–June 14th
5. Quiz 5–Chi Square–June 14th
6. Quiz 6–T Test and Proportions Test–June 21st
7. Quiz 7–ANOVA–June 21st
8. Quiz 8–Bivariate Regression–June 28th
9. Quiz 9–Multiple Regression–June 28th
10. Quiz 10–Multiple Regression with Interactions–July 1st

Lab Exercises:

There are 8 lab exercises throughout the semester. Each exercise will cover a particular topic that we discussed in lecture and is meant to help students prepare for exams and also gain familiarity with the statistical package we will be using throughout the semester. Students MUST submit their answers online by Sunday at 11:59 p.m. on the deadlines discussed below. Late lab exercises will only be accepted with valid documentation such as a doctor's note or a letter from your dean. Some lab exercises will be submitted via Blackboard, other lab exercises will be submitted via OLI. The due dates of the lab exercises are located on either Blackboard (BB) or OLI and will be updated if we are running late. Lab exercises will be worth 30% of your total grade. The topic, location, and tentative due date of each lab exercise is listed below.

1. Lab 1–Gapminder (BB)–June 7th
2. Lab 2–Recoding Variables (BB)–June 14th
3. Lab 3–Chi Square (OLI)–June 14th
4. Lab 4–Proportions Test (OLI)–June 21st
5. Lab 5–T Test (OLI)–June 21st
6. Lab 6–ANOVA (BB)–June 21st
7. Lab 7–Multiple Regression (BB)–June 28th
8. Lab 8–Multiple Regression with Interactions (BB)–July 1st

Midterm:

The midterm exam will cover material from lecture, lab, and the readings. Students will be allowed to bring a calculator to the exam administered during lecture. The midterm will be worth 20% of your total grade.

Final Exam:

The final exam is cumulative, but will mostly focus on the materials and topics covered after the midterm. The day and time of the final exam will be held in accordance with Georgetown University's exam schedule. Students will be allowed to bring one page of notes (front and back) and a calculator. The final exam is worth 30% of of your total grade.

Week of June 1

Monday–Introduction to Key Terms

Tuesday–Measures of Central Tendencies

Reading: Finish OLI Modules 1 and 2

Wednesday–Measures of Variability

Reading: Finish OLI Modules 3 and 4

Thursday–Recoding Variables

Due End of this week: Quiz 1 and 2, Lab Exercise 1.

Week of June 8

Monday–Work on Lab 2 in Class and Catch Up

Tuesday–Probability and Normal Curve

Wednesday–Confidence Intervals

Reading: Finish OLI Modules 5 and 6

Thursday–Chi Square and Statistical Significance

Readings: Module 7

Due End of this week: Quiz 3, 4, and 5, Lab Exercise 2 and 3.

Week of June 15

Monday–Midterm Exam

Tuesday–T Test and Proportions Test

Readings: Module 8

Wednesday–ANOVA

Readings: Module 9

Thursday–Correlation and Regression

Due this week: Quiz 6 and 7, Lab Exercises 4, 5, and 6.

Week of June 22

Monday–Regression

Tuesday–Multiple Regression

Wednesday–Multiple Regression with Dummy Variables

Thursday–Regression, T-Test, and ANOVA

Due this week: Quiz 8 and 9, Lab Exercise 7.

Week of June 29

Monday–Multiple Regression with Interactions

Tuesday–Multiple Regression with Interactions

Wednesday–Final Review

Thursday–Final Exam

Due this week: Quiz 10 and Lab Exercise 8.