

**Statistical and Analytical Skills**  
**MSFS 527 Fall 2011**  
**GEORGETOWN UNIVERSITY**

Fall 2011  
Lecture: Th 12:30-1:45pm (ICC 103)  
Lab: Th 2:00-3:15 (REI 282)

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**Course Objectives:**

The objectives of this class are twofold. The first goal is to develop a critical understanding of the use of quantitative research in the practice and academic study of international affairs. Whether you are primarily interested in security, finance, development, trade, or social issues much research that is likely of interest to you uses some form of quantitative analysis. This is equally true for policy reports published by the UN, World Bank, Brookings, RAND, or other relevant organizations. In order to be a productive participant in the world of international affairs, you need to be able to understand the assumptions that underlie quantitative analyses, to disentangle proper and improper uses of quantitative evidence, and to ask intelligent questions about the validity of quantitative measurement and statistical methods.

We will read and evaluate the use of quantitative evidence in reports and research articles that use different kinds of data that are common in the practice of international affairs. Throughout the course, special attention will be given to the problems in measuring the kinds of things international affairs practitioners care about. For example, we will investigate how to measure concepts such as poverty, income inequality, urbanization, corruption, efficiency of a legal system, military expenditure, public support for foreign policy, civil wars, and so on.

A second purpose is to equip you with the basic skills to actually perform quantitative analyses using a statistical software package (STATA in this case). These skills include being able to find, download, use, and manipulate datasets published on the internet; to produce and interpret basic graphs and tables in an intelligent way; and to execute and evaluate the output of basic statistical models, especially regression analysis.

This course assumes a minimal mathematical background (high school intermediate level). There will be no difficult math. Yet, the material is fairly abstract and it is absolutely essential that you keep up with the material and attend and prepare for classes. For those of you who have already taken statistics, there may be some repetition. However, much of the focus will be on international affairs examples and the use of data in the practice of international affairs.

### Course Assessment:

1. Assignments (20%): This course is light on reading but heavy on assignments. Starting with week 2, you will have assignments most weeks. The assignments will be handed out during labs and posted on Blackboard. Completed assignments should be handed in as a hardcopy to the TA at the beginning of lab following the class. During most labs, you will have time to work on your assignments. Assignments are not group work; they are to be completed individually. Assignments are graded on a basic scale. Assignments that are fully complete and that get the questions right get 4 points. Not handing in an assignment counts for 0 points. Incomplete assignments or assignments with serious errors get an intermediate score. Late assignments are penalized one point per day (including Saturday and Sunday). Recognizing that sickness or personal matters sometimes interfere with coursework, students will be able to drop one weekly assignment grade. Completing your assignments diligently will greatly improve your performance on the other components.
2. Research assignment (30%): Students will use data collected by others to research an international affairs topic of their choosing. The research note will have a fixed structure: it starts with a research question and ends with a regression analysis. The assignment will be handed out in the first week of class and is due at the end of exam week. I will distribute suggestions for appropriate data. This project may be undertaken individually or in a small group of two or (maximum) three.
3. Midterm Exam (20%): The questions will bear great similarity to those asked on the weekly assignments, the exercises in the Pollock book, and to the questions asked in the on-line modules. The exam will be open book and notes. Materials are both the readings and the class notes. Powerpoint slides from the lectures will be made available on Blackboard *after* the classes.
4. Final Exam (30%). I will distribute sample questions (and answers) before the exam and discuss these in the review session. The exam will be open book and notes. Materials are both the readings and the class notes. Powerpoint slides from the

lectures will be made available on Blackboard *after* the classes. The exam is December 16, as per the official exam schedule, but will be organized as a take-home exam to avoid logistical problems (nevertheless, December 16 will be the date, so please prepare for that).

### **Class Materials**

Pollock, Philip H. *The Essentials of Political Analysis*, Fourth Edition (NOTE: This book appears to be much cheaper on Amazon than in the bookstore.

Recommended: Pollock STATA Companion to Essentials of Political Analysis. This book is a useful tool if you are concerned about working with the statistical software we will be using.

We will also use a free on-line course on [Probability and Statistics](#) from the Open Learning Initiative. It is essential that you complete these modules before class. I will illustrate the lessons from these modules using international affairs examples but I will not repeat everything. That is: I will assume during lectures that you have completed the modules.

### **General Policies:**

- Please familiarize yourself with Georgetown's honor system ([http://gervaseprograms.georgetown.edu/hc/honor\\_system.html](http://gervaseprograms.georgetown.edu/hc/honor_system.html)). Especially check the descriptions of what constitutes plagiarism: <http://gervaseprograms.georgetown.edu/hc/plagiarism.html>
- No extensions are given for the exams or assignments unless there are highly unusual circumstances.
- I reserve the right to make changes in the assigned readings during the semester.

## **PART I: THE BASICS OF QUANTITATIVE MEASUREMENT AND ANALYSIS**

### **1. Introduction (September 1)**

No lab!

### **2. Quantitative Measurement of Social Concepts and Descriptive Statistics (September 8)**

- Pollock Chapters 1+2
- Module 1: [Probability and Statistics](#)

Lab: Intro to STATA: opening datasets, downloading datasets, and producing basic graphs

### 3. Hypotheses and Relationships Between Variables (September 15)

- Module 2: [Probability and Statistics](#)
- Pollock Chapter 3

Lab: Create a basic report on a correlate of state failure.

### 4. Foundations of Statistical Inference I (September 22)

- Modules 8 and 9 [Probability and Statistics](#)
- Pollock Chapter 6
- Optional: Review modules 5, 6, and 7 [Probability and Statistics](#) (very basic high school probability theory but perhaps useful for those who need a refresher).

Lab: Continuation of lecture and PEW Global Public Opinion Data

### 5. Foundations of Statistical Inference II (September 29)

- Modules, 11, 12, and 14 C-C case [Probability and Statistics](#)
- Pollock Chapter 7
- Edward Mansfield and Jack Snyder [“Democratization and the Danger of War”](#)  
*International Security*, Summer 1995

Lab: Work with new data on democratization and war to update the Mansfield-Snyder analyses.

### 6. Midterm Exam: Basics and Statistical Inference (October 6)

No lab!

## PART II: REGRESSION ANALYSIS

### 7. Linear Regression I (October 13)

- Pollock Chapter 4 and Chapter 8 (until page 196)

Lab: use Pippa Norris [data](#) and [codebook](#) World Values Data to further examine the thesis advanced by Inglehart and Norris in [‘The True Clash of Civilizations?’](#) Ronald Inglehart and Pippa Norris. *Foreign Policy*. March/April: 63-70.

### 8. Linear Regression II (October 20)

- Pollock Chapter 8 (remainder)

Lab: Oil and globalization (regression analysis with non-linear relationships and dummy variables)

### 9. Linear Regression III (October 27)

- Pollock Chapter 8 (review)

Lab: TBA

### 10. Logistic Regression (November 3)

- Pollock, chapter 9
- Kelley, Judith. 2007. [Who Keeps International Commitments and Why? The International Criminal Court and Bilateral Non-Surrender Agreements.](#) *The American Political Science Review* 101(3):573-89.

Lab: Who ratified the Rome Treaty? Who signed bilateral immunity agreements with the United States? (logit regressions)

### 11. Panel Regression (November 10)

- Chapter 2 of Allison “Fixed Effects Regression Models” (will be on Blackboard).

Lab: TBA

### 12. Applied Regression Analysis (November 17)

- Burnside, C. and D. Dollar, 2000, “[Aid, Policies and Growth](#)” *American Economic Review*, 90 (4): 847-868. This paper was originally the main background paper for the influential World Bank Development Report 1998. [Assessing Aid. What Works, What Doesn't, and Why](#) (New York: Oxford University Press). Browse the report (or the overview) to see how the results of the academic piece filtered into the policy report.
- James D. Fearon and David Laitin. 2003. “[Ethnicity, Insurgency, and Civil War.](#)” *American Political Science Review*.

Lab: work on research assignment

### November 24: Thanksgiving

### 13. Review Session (December 1)

Lab: work on research assignment

