

INTS 4739

DEFENSE AND SECURITY QUANTITATIVE ANALYSIS

Tuesday 2pm-4:50pm in SIE 1110;
Wednesday 6pm-8:50pm in SIE 3130

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COURSE DESCRIPTION

This course explores fundamental concepts related to the quantitative analysis of defense, security, and international politics. There are three main questions that guide this course and that are, more broadly, central to quantitative research. First, where does data come from and how is it collected and codified? Second, what is the most appropriate method to analyze a given data set and how does one interpret the results? And third, how does quantitative analysis fit into a broader research design?

After a brief review of material that was covered in INTS 4735 (Defense and Security Methods), students will explore how to collect, codify, and prepare data for analysis. From here the course moves onto methods of analysis including univariate, bivariate, and multivariate analyses, which are not only common but together form the foundation for more advanced statistical techniques. Next, the course examines how statistics (and experiments) can be used for inference and hypothesis testing. In the final two weeks students will explore particular types of data and quantitative methods that are growing increasingly common. This includes binary data, panel data, count data, and time, as well as mixed methods and forecasting.

COURSE ASSIGNMENTS

There are five grading components to this course:

1. Research Proposal – 40%

Students will identify a meaningful research question and produce a formal, written research proposal of 15-20 pages. *The proposal is due on March 13th by 5pm, and students should submit an electronic version to evan.perkoski@du.edu, as well as a hard copy to Sie 1120.* The document should be double-spaced, in Times New Roman, size 12 font, with one inch margins. The proposal will have four main elements:

1. Background: an overview of the existing literature including its main findings and gaps; the policy and academic significance of the research question (puzzle).

2. **Research Design:** how you propose to study the question (purely quantitative, mixed methods, case studies (and cases), etc), the main hypotheses, and a description of the results that would both support and disprove your hypotheses.
3. **Data and Methods:** overview of independent, dependent, and control variables including conceptual definitions, operational definitions, and a description/summary of data. For control variables, discuss what they are and why they are necessary to your analysis. If using existing data, provide sources, scope, definitions, and limitations; if collecting new data, provide coding instructions, information sources, and limitations. Also include the methods that would be used to analyze the data and a discussion of why they are appropriate.
4. **Limitations and Contributions:** the strengths and weaknesses of the research design, the data, and/or the data collection; how the research design or future/additional research can overcome the weaknesses; and how the findings contribute to existing research and the policy community.

2. Research Presentation – 20%

In the last two weeks of the course, students will present their research proposals to the class. Presentations should last ten to fifteen minutes – at most – and cover the main points of the research proposal. Although placing the project in the context of existing research is important, most of the presentations should be devoted to points two, three and four: the data, the research design, and the limitations and contributions.

3. Individual Meetings – 10%

Between weeks five and seven, students are required to meet with me to discuss their research proposals. These meetings will last around 15 minutes and students should be ready to discuss the main elements of the proposal including the research question, the research design, as well as the data, methods, and potential limitations. In week four I will send out instructions for scheduling meetings.

4. Weekly Assignments – 15%

Students are required to complete three weekly assignments throughout the course, and assignments will be available for weeks two through seven – leaving a total of six possibilities. Assignments will be made available by Friday and due the following week, and they will pertain to the material on the day in which they are due. Completed assignments must be emailed to me (evan.perkoski@du.edu) prior to the start of class. Students should also be prepared to discuss their work.

5. Participation – 15%

Participation is critical to the success of this course. Students are expected to come to class prepared, having completed the readings for that day, and ready to engage with the material.

Students may meet with me throughout the course to assess their participation grade.

READINGS

Completing the assigned readings prior to class is imperative. The course is heavily discussion-based and it is therefore important to come to class prepared and with questions.

Readings for the course are primarily drawn from two sources:

1. Frankfort-Nachmias, Chava, David Nachmias and Jack DeWaard. *Research Methods in the Social Sciences*, 8th Edition. Worth Publishers, 2015.
2. Box-Steffensmeier, Janet M., Henry E. Brady, and David Collier. *The Oxford Handbook of Political Methodology*, Volume 10. Oxford University Press, 2008.

Students should retain *Research Methods in the Social Sciences* from INTS 4735. *The Oxford Handbook of Political Methodology*, however, is readily available online through DU's library. The library has hard copies available as well.

Week 1, January 3/4: Review

- *Research Methods in the Social Sciences*, chapters 3, 7, 8.
- King, Gary, Robert O. Keohane, and Sidney Verba. *Designing social inquiry: Scientific inference in qualitative research*. Princeton University Press, 1994. Chapter One. [Available on Canvas]
- Cukier, Kenneth, and Viktor Mayer-Schoenberger. "The Rise of Big Data: How it's Changing the Way We Think about the World." *Foreign Affairs*, 92 (2013): 28. [Available on Canvas]
- Taleb, Nassim N. "Beware the big errors of 'big data.'" *Wired Opinion*, August (2013). [Available on Canvas]

Week 2, January 10/11: Data Collection, Data Preparation, and Missing Data

- *Research Methods in the Social Sciences*, chapter 14. Also review chapter 7.
- Collier, David, Jody Laporte, and Jason Seawright. "Typologies: Forming Concepts and Creating Categorical Variables" in *The Oxford Handbook of Political Methodology*.
- Allison, Paul, *Missing Data*. Chapters 1, 2, & 3 (pages 3-17). [Available on Canvas]
- In Class Analysis:

- Pape, Robert A. “The strategic logic of suicide terrorism.” *American Political Science Review* 97.03 (2003): 343-361.
- Ashworth, Scott, et al. “Design, inference, and the strategic logic of suicide terrorism.” *American Political Science Review* 102.02 (2008): 269-273.
- Pape, Robert A. “Methods and findings in the study of suicide terrorism.” *American Political Science Review* 102.02 (2008): 275-277.

Week 3, January 17/18: Univariate and Bivariate Analysis

- *Research Methods in the Social Sciences*, chapters 15 and 16
- LaFree, Gary, and Laura Dugan. “Tracking global terrorism trends, 1970–2004.” *To protect and to serve*. Springer New York, 2009. 43-80. [Can skim]
- In Class Analysis:
 - Biddle, Stephen, Jeffrey A. Friedman, and Jacob N. Shapiro. “Testing the surge: Why did violence decline in Iraq in 2007?” *International Security* 37.1 (2012): 7-40.

Week 4, January 24/25: Multivariate Analysis and OLS

- *Research Methods in the Social Sciences*, chapter 17
- Allison, Paul D. *Multiple regression: A primer*. Pine Forge Press, 1999. Chapters 1, 2, & 3. [Available on Canvas]
- In Class:
 - Piazza, James A. “Rooted in poverty?: Terrorism, poor economic development, and social cleavages.” *Terrorism and Political Violence* 18.1 (2006): 159-177.

Week 5, January 31/February 1: Experiments, Inference, and Hypothesis Testing

- *Research Methods in the Social Sciences*, chapter 19
- Gerber, Alan S., and Donald P. Green. “Field experiments and natural experiments.” In *The Oxford Handbook of Political Methodology*.
- In class Analysis:
 - Mansfield, Edward D., and Jack Snyder. “Democratic transitions, institutional strength, and war.” *International Organization* 56.02 (2002): 297-337.

Week 6, February 7/8: Binary Data, Panel Data, Count Data, and Time

- Frees, Edward W. *Longitudinal and panel data: analysis and applications in the social sciences*. Cambridge University Press, 2004. Chapter 1 (Introduction) only. [Available online via DU library]
- Allison, Paul D. *Logistic regression using SAS: Theory and application*. SAS Institute, 2012. Chapters 2.1–2.5, 2.9 (pages 5-13, 28-31).
- Fearon, James D., and David D. Laitin. “Ethnicity, insurgency, and civil war.” *American Political Science Review* 97.01 (2003): 75-90.
- In Class Analysis:
 - Fortna, Virginia Page. “Does peacekeeping keep peace? International intervention and the duration of peace after civil war.” *International Studies Quarterly* 48.2 (2004): 269-292.

Week 7, February 14/15: Mixed Methods and Forecasting

- Fearon, James D., and David D. Laitin. “Integrating Qualitative and Quantitative Methods.” In *The Oxford Handbook of Political Methodology*.
- Ward, Michael D., Brian D. Greenhill, and Kristin M. Bakke. “The perils of policy by p-value: Predicting civil conflicts.” *Journal of Peace Research* 47.4 (2010): 363-375.
- In class Analysis:
 - Miller, Nicholas L. “The secret success of nonproliferation sanctions.” *International Organization* 68.04 (2014): 913-944.
 - *Skim*: Chenoweth, Erica and Evan Perkoski. “How Risky is Nonviolent Dissent?” Working paper. [Available on Canvas]

Week 8, February 21/22: No Class

- In lieu of class, students must schedule a meeting to discuss their research proposals with me sometime between weeks five and seven.

Week 9, February 28/March 1: In-Class Presentations**Week 10, March 7/8: In-Class Presentations**