# INTA 6003: Empirical Research Methods

### Dr. David Muchlinski

### Fall, 2018

E-mail: `david.muchlinski@inta.gatech.edu`
Office Hours: W 1-2pm **OBA**
Office: Habersham 147

Web: **www4.ncsu.edu/ username**
Class Hours: W 6-9:00pm
Class Room: Habersham G17

## Course Description

The primary purpose of this course is to provide an introduction to the application of scientific research methods to the study of international affairs, broadly construed. We will follow three tracks simultaneously: research design, statistics, and an annotated bibliography for an empirical research project of your choice. The idea is to provide you with experience in completing professional scientific research that involves formulating good research questions, thinking about those questions theoretically, collecting relevant data, analyzing, and writing up the results. In this seminar, you will learn the fundamentals of social science research. Upon completion of this course, you will know how to both consume and create scientific research into the study of international affairs using the most widely used social scientific methods. Moreover, since social science research can be an important input into the policy design process, this course will assist you to understand, interpret and critique a wide range of social science research relating to international affairs. You will also practice your written and oral communication skills, and in particular, will hone your skills in communicating social scientific research to wide variety of audiences.

You will be graded on your participation in weekly seminar discussions, an individual presentation on an article of your choice, and an annotated bibliography that you will produce on a research topic of your choosing.

## Required Materials

- Course materials including syllabus and mandatory readings from material that I am not requiring you to purchase are available on Canvas.

- King, Gary, Robert O. Keohane, and Sidney Verba (1994). Designing social inquiry: Scientific inference in qualitative research. Princeton university press. Henceforth referred to as "KKV" in the syllabus below.

- Lewis-Beck, Colin, and Michael Lewis-Beck (2015). Applied regression: An introduction. Vol. 22. Sage publications.

- Mohr, L. B. (1990). Understanding significance testing (Vol. 73). Sage.

## Optional Materials

- Fox, Johnathan (2011). An R Companion to Applied Regression. Sage Publications

## Prerequisites

This course will introduce you to the canonical methods of statistical analysis used in the study of international affairs. As such, this course assumes that you have had at least one undergraduate course in statistical research methods covering basic probability theory, sampling, measures of central tendency, and the most common statistical tests including z and t-tests, analysis of variance, and univariate linear regression. Students who need to brush up on their background knowledge of statistics in social science are encouraged to consult the following test: Alan, Agresti, and Barbara Finlay (2009). "Statistical methods for the social sciences".

## Course Objectives

A major goal of this course is to train you how to understand, critique, and synthesize the scholarly literature on international affairs, and to interpret and communicate this research to non-experts. By the end of this course students should be able to:

1. Understand what makes a claim scientific, and apply the scientific method to the study of international affairs

2. Recognize and formulate a proper social science research question

3. Apply an appropriate methodology to answer your research question using the logic of causal analysis

4. Collect and operationalize quantitative and qualitative data relevant to your research question

5. Analyze and interpret this data through regression tables, appropriate methods of data visualization, and qualitative analysis

## Course Structure

This seminar is essentially divided into three large topics, or what may be thought of as blocs. The first, from weeks 1-3 deals with introducing students to the application of the scientific method to the study of international affairs. The second, from weeks 4-9, introduces common methods of statistical analysis and warns students of possible pitfalls when conducing this type of research. The third bloc, from weeks 10-15, provides students an introduction to alternative

methods of analysis utilized in the study of international affairs, from qualitative approaches to more advanced quantitative approaches that you will learn more about in other seminars. After each of these blocs, students should be aware of the major differences/debates in these fields or between these various methods of analysis. This seminar makes clear that there is no "best" method for answering research methods in the study of international affairs, and will impress upon students that the formulation of interesting questions is the central goal of the scientific research process. The choice of which method to utilize to answer these questions should be determined by the type of data available, theoretical framework, and researcher experience with the choices of method at hand, among other factors.

## Software

This seminar will utilize the R statistical analysis software. R is free, open-source, software. R is a command line driven program, meaning you will need to master its programing language in order to carry out the construction of your statistical models. This course will provide an introduction to programing in R. Students who are unfamiliar with programing should purchase John Fox's book listed above. To download R visit https://www.r-project.org. I will teach using R Studio. To download R Studio, please visit https://www.rstudio.com. Note that to utilize R Studio, you must also install R.

## Grades

You will earn you grade in this seminar by communicating your understanding of the basic building blocks of positivist social science as presented in seminar readings, lectures, and discussions. Your personal use of any of these methods in your own research will not affect your grade. You do, however, need to demonstrate your understanding of these fundamentals as they are currently accepted by the scholarly community.

Your understanding of the course material will be communicated to me via the following:

- **50% Participation in seminar discussion**

- **30% Annotated Bibliography**

- **20% Individual presentation**

## Participation

Your participation in this seminar is the largest proportion of your grade. As this is a seminar, I will keep lecturing to a minimum, allowing you to dictate the issues raised. To assist in facilitating discussion, students must email to me at my Georgia Tech email address listed at the top of this syllabus, three questions which arose from your reading of the material each week. Please send these questions no later than 24 hours before the seminar meets. I will then choose a number of questions to discuss during the seminar. These questions provide students with experience critically evaluating research into international affairs. Questions can range from questions of comprehension to critique.

### Annotated Bibliography

Students must email to me by start of class Week 3 a research question for which they will develop an annotated bibliography over the course of the semester. Use scholarly search engines (Web of Science, Google Scholar, Georgia Tech Library) to read through the relevant literature to identify an interesting research question you wish to understand more about. Begin reading through articles in your own time and develop an annotated bibliography over the course of the semester that contains relevant information on these articles. For guidance in developing an annotated bibliography, see this: https://guides.library.cornell.edu/annotatedbibliography.

### Individual Presentation

During the final seminar meeting students will present a 10-12 minute presentation on an article of their choosing. The presentation will convey the student's knowledge of the research question, placement within the relevant literature, theoretical framework, hypotheses, methods, and results of the study. This presentation will introduce students to the framework of conference presentations in the study of international affairs. Students will prepare Power Point slides for the presentation, and other students and well as the professor will be able to ask questions relevant questions for five minutes after the presentation.

### Grading Policy

Your final grade will be assigned as a letter grade according to the following scale:

- A - 90-100%

- B - 80-89%

- C - 70-79

- D - 60-69

- F - 0-59%

## Course Policies

### During Class

There are a few basic rules for this seminar that all students are expected to follow:

1. Students are responsible for all materials assigned. As participation accounts for 50% of your grade, it is expected all students will attend each seminar and will come well prepared by having read the appropriate material and submitting discussion questions via email.

2. As this seminar meets quite late in the evening, students may feel free to bring dinner and eat it during the seminar. However, please be considerate to others in the seminar and refrain from brining overly-smelly foods, or foods that may cause severe allergic reactions for other students. Those who have food allergies should notify myself and their classmates so that medical situations can be avoided. Students who eat/drink during class are required to do so with minimum disturbance, and to thoroughly clean up afterwards.

3. All cellphones and other telecommunications devices are to be switched off or put on silent during class. If you absolutely must take a call during class, please leave class to do so, and with minimal disturbance.

4. Students will abide by and be familiar with Georgia Tech's Student Code of Conduct and policy on Non-Discrimination, spelled out below. These guidelines will guide all discussions and individual work. Violations of these policies will be treated with the utmost seriousness. See http://www.catalog.gatech.edu/rules/22/ for an articulation of some basic expectations - that you can have of me, and that I have of you.

## Policy on Absences

First things first: if you are sick, or feel sick, **please stay home**! You can always get notes and catch up on material from your classmates. Please do not run the risk of making others sick by feeling obliged to come to class if you are ill.

Second thing: Absences for medical or personal emergencies will be excused upon verification by the Office of the Dean of Student Life. For a description of Institute approved research for absence, see http://studentlife.gatech.edu/content/class-attendance.

## Policies on Incomplete Grades and Late Assignments

Late assignments are strongly discouraged and will incur penalties except in the event of a verified illness or emergency (documentation will be requested from the Office of Student Life). Any major scheduling conflicts - including those that arise due to participation in "approved Institute activities" - should be discussed with the professor at least two weeks before the assignment due date. A mutually beneficial time will be found to complete any assignment missed.

## Academic Integrity and Honesty

Academic dishonesty in the form of cheating or plagiarism will not be tolerated. In brief, plagiarism is defined, for the purposes of this class, as: copying, borrowing, or appropriating another person's work and presenting it as your own in a paper or oral presentation, deliberately or by accident. Acts of plagiarism will be reported in accordance with the Honor Code. In order to avoid being charged with plagiarism, if you use the words, ideas, phrasing, charts, graphs, or data of another person or from published material, then you must either: 1) use quotation marks around the words and cite the source, or 2) paraphrase or summarize acceptably using your own words and cite the source. The plagiarism policy is not restricted to books, but also applies to video and audio content, websites, blogs, wiki's, and podcasts. Plagiarism includes putting your name on a group project to which you have minimally contributed. For information on Georgia Tech's Academic Honor Code, please visit http://www.catalog.gatech.edu/policies/honor-code/ or http://www.catalog.gatech.edu/rules/18/. Any student suspected of cheating or plagiarizing on a assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

## Accommodations for Disabilities and Non-Discrimination Statement

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with the Office of Disability Services at Suite 123, Smithgall Student Services Building, 353 Ferst Drive, 404-894-2563 (Voice); 404-894-1664 (TDD). For more information on Georgia Tech's policy on working with students with disabilities, please see review the Office of Disability Service's web page at https://policies.ncsu.edu/regulation/reg-02-20-01/.

The Office of Disability Services collaborates with students, faculty, and staff to create a campus environment that is usable, equitable, sustainable and inclusive of all members of the Georgia Tech community. Disability as an aspect of diversity that is integral to society and Georgia Tech. If students encounter academic, physical, technological, or other barriers on campus, the Disability Services team is available to collaboratively find creative solutions and implement reasonable accommodations.

The Institute does not discriminate against individuals on the basis of race, color, religion, sex, national origin, age, disability, sexual orientation, gender identity, or veteran status in the administration of admissions policies, educational policies, employment policies, or any other Institute governed programs and activities. The Institute's equal opportunity and non-discrimination policy applies to every member of the Institute community. The Institute's affirmative action program, Title IX program, and related policies are developed in compliance with applicable law. Pursuant to Title IX, the Institute does not discriminate on the basis of sex in its education programs and activities. As such, the Institute does not tolerate any kind of gender-based discrimination or harassment, which includes sexual violence, sexual harassment, and gender-based harassment. Inquiries concerning the Institute's application of or compliance with Title IX may be directed to the Title IX Coordinator, Burns Newsome, burnsnewsome@gatech.edu, 404-385-5151. Additionally, inquiries concerning the application of applicable federal laws, statutes, and regulations (such as Title VI, Title IX, and Section 504) may be directed to the U.S. Department of Education's Office of Civil Rights www2.ed.gov/ocr.

# Schedule and weekly learning goals

This syllabus is a contract between myself and you as students. I agree to provide my knowledge of the subject matter to you and you agree to read and prepare for the discussion of all required readings **in advance** of all seminar meetings. This schedule is tentative and subject to change.

**Week 1: Introduction - What is Social Science?**

- Mandatory Reading:

  1. KKV, Chapters 1 and 3

  2. Bond, Jon (2007). "The Scientification of the Study of Politics: Some Observations on the Behavioral Evolution of Political Science". The Journal of Politics 69(4): 897-907

  3. Frankfurt, Harry G (1986). "On Bullshit." Raritan Quarterly Review 6(2)

  4. Carl Sagan (1996). "The Fine Art of Baloney Detection". Chapter 12 in Sagan (1996) The Demon-Haunted World.

  5. Sambanis, Nicholas (2004). "What is Civil War? Conceptual and Empirical Complexities of an Operational Definition". The Journal of Conflict Resolution 48(6): 814-858.

  6. Walt, Stephen (1991). "The Renaissance of Security Studies". International Studies Quarterly 35(2): 211-239.

**Week 2: Theorizing Political Science**

- **We will not meet this week due to APSA, you are still responsible for the reading**

- Mandatory Reading:

  1. Fearon, James (1995). "Rationalist Explanations for War". International Organization 49(3): 379-414.

  2. Waltz, Kenneth (1993). "The Emerging Structure of International Politics". International Security 18(2): 44-79.

  3. Walt, Stephen (1999). "Rigor or Rigor Mortis? Rational Choice and Security Studies". International Security 23(4): 5-48.

  4. Levi, Margaret (2009). "Reconsiderations of Rational Choice in Comparative and Historical Analysis" in Comparative Politics: Rationality, Culture, and Structure. Cambridge University Press: 117-134. [Available on Canvas]

  5. Desch, Michael (1998). "Culture Clash: Assessing the Importance of Ideas in Security Studies". International Security 23(1): 141-170

**Week 3: What is Methodology?**

- Required Reading:

  1. KKV Chapter 2

  2. Gerring, John (2012). Social Science Methodology: A Unified Framework. Cambridge University Press. Chapters 1-3 [Available on Canvas.]

3. King, Garry (1989). Unifying Political Methodology: The Likelihood Theory of Statistical Inference. Chapter 1. [Available on Canvas.]

4. Shmueli, Galit (2010). "To Explain or Predict?". Statistical Science 25(3): 289-310.

5. Box-Steffensmeier, Henry Brady, and David Collier (2008) "Political Science Methodology." In The Oxford Handbook of Political Methodology. Oxford University Press. [Available on Canvas.]

- **Assignment:**

- Research Topic for Annotated Bibliography Due at the Start of Class

**Week 4: Measurement and Descriptive Statistical Inference**

- Required Reading:

1. King 1989. Chapter 2 [Available on Canvas.]

2. Gill, Jeff (2006). Essential Mathematics for Political and Social Research. Cambridge University Press. Chapter 7 [Available on Canvas.]

3. Mohr, Lawrence. 1990. Understanding Significance Testing (Sage Publications)

4. Agresti, Alan and Barbara Finlay (2014). Statistical Methods for the Social Sciences 4th ed. Pearson. Chapters 1-4. [Available on Canvas.]

   5. **Note:** This book gives a good general introduction to probability theory and statistics. Students with no or little understanding of these issues will find this book extremely useful. Students with more advanced knowledge of statistics (who have taken previous coursework on this subject) may feel free to skip this reading.

**Week 5: Introduction to Basic Probability and Statistics**

- Required Reading:

1. Cohen, Jacob (1994). "The Earth is Round (p < .05)." American Psychologist 49(12): 997-1003

2. Freedman, David (1999). "From Association to Causation: Some Remarks on the History of Statistics." Statistical Science 14(3): 243-258

3. McGregor, James (1993). "Procrustes and the Regression Model: On the Misuse of the Regression Model." PS: Political Science & Politics 26(4): 801-804

4. Lewis-Beck, Michael S. 1980. Applied Regression: An Introduction (Sage Publications)

**Week 6: Introduction to Regression Analysis I: Model Specification**

- Required Reading:

1. Achen, Christopher (2002). "Toward a New Political Methodology: Microfoundations and ART." Annual Review of Political Science 5: 423-50

2. Achen, Christopher (2005). "Let's Put Garbage-Can Regressions and Garbage-Can Probits where they Belong." Conflict Management and Peace Science 22(4) 327-339

3. Schrodt, Philip (2014). "Seven Deadly Sins of Contemporary Quantitative Political Analysis." Journal of Peace Research 51(2): 287-300

4. Dunning, Thad (2010). Design-Based Inference: Beyond the Pitfalls of Regression Analysis? In David Collier and Henry Brady, eds., Rethinking Social Inquiry: Diverse Tools, Shared Standards. Lanham, MD: Rowman & Littlefield, 2nd edition. Available at: http://www.thaddunning.com/wp-content/uploads/2010/05/Dunning_Rethinking-Social-Inquiry.pdf

5. King, Garry (1991). "Truth is Stranger than Prediction, More Questionable that Causal Inference." American Journal of Political Science 35(4): 1047-1053.

6. Clarke, Kevin. (2005). "The Phantom Menace: Omitted Variable Bias in Econometric Research". Conflict Management and Peace Science, 22, 341-352.

**Week 7: Introduction to Regression Analysis II: Addressing Threats to Inference**

- Required Reading:

1. Tu, Yu-Kang, David Gunnell, and Mark Gilthorpe (2008). "Simpson's Paradox, Lord's Paradox, and Suppression Effects are the same phenomenonâĂŞthe reversal paradox." Emerging themes in epidemiology, 5(1), p.2.

2. Daoud, Jamal (2017). "Multicollinearity and regression analysis." In Journal of Physics: Conference Series 949(1):1-6

3. Choi, Seung-Wang (2009). "The effect of outliers on regression analysis: regime type and foreign direct investment". Quarterly Journal of Political Science, 4(2), 153-165.

4. Keele, L., and Kelly, N. J. (2006). "Dynamic models for dynamic theories: The ins and outs of lagged dependent variables." Political analysis, 14(2), 186-205.

5. Bell, Andrew, and Kelvyn Jones (2015). "Explaining fixed effects: Random effects modeling of time-series cross-sectional and panel data." Political Science Research and Methods 3(1), 133-153.

**Week 8: Introduction to Regression Analysis III: Interpreting a Model**

- Required Reading

1. Fox, John. (2003). "Effect displays in R for generalised linear models". Journal of statistical software, 8(15), 1-27.

2. Braumoeller, Bear (2004). "Hypothesis testing and multiplicative interaction terms". International organization, 58(4), 807-820.

3. Brambor, Thomas, William Roberts Clark, and Matt Golder. (2006). "Understanding interaction models: Improving empirical analyses". Political analysis, 14(1), 63-82.

4. Miller, Steven (2017). "Reading a Regression Table: A Guide for Students". Available here http://svmiller.com/blog/2014/08/reading-a-regression-table-a-guide-for-students/

- **Assignment:**

- Remember to work on your annotated bibliography - due December, 10 at 11:59pm

- Choose an article utilizing quantitative or qualitative methods to present during the final seminar. Email your choice to me before the class meeting today.

**Week 9 Qualitative Methods (Guest Lecture by Dr. Rachel Whitlark)**

- Required Reading:

  1. Alexander L. George and Andrew Bennett. 2005. Case Studies and Theory Development in the Social Sciences. Cambridge, MA: MIT Press., Chapters 1 and 10. [Available on Canvas.]

  2. Mahoney, James and Gary Goertz. 2006. "A Tale of Two Cultures: Contrasting Quantitative and Qualitative Research" Political Analysis 14:227-249

  3. Tansey, Oisín. (2007). "Process tracing and elite interviewing: a case for non-probability sampling". PS: Political Science & Politics, 40(4), 765-772.

  4. Levy, Jack (2008). "Case studies: Types, designs, and logics of inference". Conflict management and peace science, 25(1), 1-18.

  5. Posner, Daniel N. "The political salience of cultural difference: Why Chewas and Tumbukas are allies in Zambia and adversaries in Malawi." American Political Science Review 98, no. 4 (2004): 529-545.

**Week 10: Models for Categorical and Limited Dependent Variables**

- Required Reading:

  1. Peng, Chao-Ying Joanne, Kuk Lida Lee, and Gary M. Ingersoll (2002). "An Introduction to Logistic Regression Analysis and Reporting." Journal of Educational Research 96(1):3-14

  2. Peng, Chao-Ying Joanne, and Tak-Shing Harry So 2002. "Logistic Regression Analysis and Reporting: A Primer". Understanding Statistics: Statistical Issues in Psychology, Education, and the Social Sciences 1, no. 1 (2002): 31-70. Available at: http://www.indiana.edu/~jopeng51/teaching-logistic.pdf

  3. Fearon, James and Laitin, David (2003). "Ethnicity, Insurgency, and Civil War". American Political Science Review, 97(1), 75-90.

**Week 11: Getting (More) Familiar with R**

- Optional Reading

  1. Fox, Johnathan (2011). An R Companion to Applied Regression. Sage Publications

- Assignment: Send an email to me with one or two issues in R that you find difficult and would like to see addressed over the course of the next two weeks in our lab sessions. We will utilize the next two seminars to engage exclusively with R as a lab.

**Week 12: Getting (More) Familiar with R Continued**

- Optional Reading

  1. Fox, Johnathan (2011). An R Companion to Applied Regression. Sage Publications

**Week 13: Social Network Analysis (Guest Lecture by Professor Jenna Jordan)**

- Required Reading:

    1. Baxter, Phil, Jenna Jordan, and Lawrence Rubin (2018). "How small states acquire status: A social network analysis". International Area Studies Review.

**Week 14: Thanksgiving Break: No Class**

- Work on Annotated Bibliographies

**Week 15: Final Seminar and Presentations**

- Article Presentations due during seminar today

- Annotated bibliographies due by **December 10, 11:59pm**