

# Applied Research Methods

POL 306  
Spring 2022

Harrison Hall 202  
Mon & Wed 10:05 AM — 11:25 AM

Instructor: Dr. Kevin Reuning (ROY-ning)

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Course Website: Canvas

Office: Harrison Hall 222

Office Hours: 12 — 2 PM Wed & Thurs

Schedule appointments: <https://calendly.com/reuning>

## Course Description

In this course we will learn how quantitative analysis can be used to test social science theories and analyze public policy. This will require covering both theoretical questions as well as directly applying what we learn using R, a common statistical software. By the end of the term students will be able to understand quantitative analysis done by others as well as implement their own.

## Student Learning Objectives

1. Students will be able to define and explain statistical concepts used in the analysis of political phenomenon.
2. Students will demonstrate skill in evidence-based reasoning by identifying the appropriate research design and data for a given research question.
3. Students will be able to identify and apply the appropriate statistical methodology and analysis for a given problem and understand the limitations of their research choices.
4. Students will be able to apply statistical methodologies to contemporary political issues and problems and be able to identify and evaluate alternative political science-based solutions.
5. Students will be able to evaluate the possibilities for positive change in democratic society as engaged researchers.

## Recommended Book

In the first half of the semester the readings will be from online sources. The second half will be based off of *Real Stats*. The book is not cheap, but there is a copy available through course reserves in King Library.

Bailey, Michael A. 2016. *Real Stats: Using Econometrics for Political Science and Public Policy*.

**Masks are mandatory for any in-person meeting.**

## Course Policies

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### Weekly Flow

Most weeks in this course will have a similar flow to them:

1. **Mondays** will be used to lecture on new concepts with some applications.
2. **Wednesdays** will feature shorter lectures and in-class work on applying to them.
3. By **Friday** at midnight you will have submitted a short 5 point canvas activity (graded for completeness only).
4. Any homework will be due the following **Monday** before class starts.

### Respect

In this course we will learning how to test social scientific theories and evaluate public policy. At times this will require discussing issues that touch many of us personally. In these discussions our aim is to understand what the evidence implies about the world. In these discussions we will treat everyone with respect.

### Preparation

This course builds on itself and so students need to come to class everyday ready and willing to learn. In the second half of the semester we will be working through an R tutorial and so you are expected to bring a laptop and be prepared to actively engage in the assignment during class. The readings in this course are designed to support what we've learned in class. You can read them prior to or after classes on Monday.

### Technology

In the class you are expected to be focused on what is going on within the class. We will be making use of your laptops throughout the semester so you are free to bring them (and required once we start using R). That said, the internet is distracting. Try to think not only about yourself but also those around you. If it becomes a problem for you or others we may have to create laptop free days or areas.

### Email Policy

I will check email between 8am and 6pm, and will try to always respond to any contact within 24 hours. Although I do not expect formality in email communications, I do expect you to respect that emails are not a costless act. In addition, just as I am responsive to email you must be responsive to email as well. Email is how the world runs.

## Grade Distribution and Assignments

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Item	Percentage
Weekly Activities and Attendance	15%
Assignments	25%
Midterm	30%
Final	30%

### Weekly Activities and Attendance

Every week you will get 10 points total for attending classes and completing the weekly activity. You'll get 5 points (2.5 for each class) for attendance and 5 points for the Canvas activity.

### **Weekly Activities**

Each week there will be short canvas assignments to complete. You will get full credit if you make a full attempt at answering all questions. You will not get full credit if you have copied and pasted answers from the slides, readings the internet, or each other. **These assignments will be due by Friday at midnight. If you bring a computer you will have time in class on Wednesdays to complete them.**

### **Attendance**

You will receive 2.5 points for every class you attend. You will get 2 free unexcused absences throughout the semester. You do not need to email me about them, they will simply apply to the first 2 classes you miss throughout the semester. After this you will lose 2.5 points off of that week's points.

### **Assignments**

Throughout the semester I will assign out of class work. This will be graded on accuracy. You will have at least a week to complete it.

### **Midterm**

The midterm will take place on Thursday March 7th. It will be online and we will discuss the format of the midterm as we approach it.

### **Final**

The final will take place on during finals week. It will be online and we will discuss the format of the final as we approach it.

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### **Extra Credit**

I will provide extra credit opportunities throughout the semester.

### **Long Term Absences**

If you expect to miss more than a week of class you need to contact me within the first week you miss class. If you do, I will work with you to figure out how for you to catch-up on missed content and assignments.

### **Late work policy**

In order to receive a deadline extension you should contact me more than 24 hours before the deadline. If an assignment is turned in late without an extension but within 24 hours of the due date, your grade will decrease by 5 percentage points (a 95% would become a 90%). For every additional 24 hours after this it loses another 5%.

### **Letter Grade Distribution**

>= 93.00	A	73.00 - 76.99	C
90.00 - 92.99	A-	70.00 - 72.99	C-
87.00 - 89.99	B+	67.00 - 69.99	D+
83.00 - 86.99	B	63.00 - 67.99	D
80.00 - 82.99	B-	60.00 - 62.99	D-
77.00 - 79.99	C+	<59.99	F

## Academic Integrity

Miami University is a scholarly community whose members believe that excellence in education is grounded in qualities of character as well as of intellect. We respect the dignity of other persons, the rights and property of others, and the right of others to hold and express disparate beliefs. We believe in honesty, integrity, and the importance of moral conduct. We defend the freedom of inquiry that is the heart of learning and combine that freedom with the exercise of judgment and the acceptance of personal responsibility.

Miami demands the highest standards of professional conduct from its students, faculty, and staff. As a community of scholars, our fundamental purpose is the pursuit of knowledge. Integrity in research and creative activities and in academic study is based on sound disciplinary practices and expectations, as well as a commitment to the values of honesty and integrity.

Any student caught committing academic dishonesty will, at a minimum, receive a 0 for the assignment at hand. For more information on academic dishonesty and potential punishments visit <http://MiamiOH.edu/integrity>.

## Disability Services

If you are a student with a physical, learning, medical and/or psychiatric disability and feel that you may need a reasonable accommodation to fulfill the essential functions of the course that are listed in this syllabus, you are encouraged to contact the Office of Student Disability Services at 529-1541 (V/TTY), located in the Shriver Center, Room 304.

## Course Outline

### January 24 & 26 Theories and Hypothesis

*How does research start?*

<http://www.socialresearchmethods.net/kb/resques.php>

<http://www.socialresearchmethods.net/kb/relation.php>

### January 31 & February 2 What are we researching and how?

*Who or what are we researching?*

<http://www.socialresearchmethods.net/kb/unitanal.php>

<http://www.socialresearchmethods.net/kb/sampterm.php>

<http://www.socialresearchmethods.net/kb/external.php>

### February 7 & 9 Variables

*How are we quantifying the world?*

<http://www.socialresearchmethods.net/kb/variable.php>

<http://www.socialresearchmethods.net/kb/measlevl.php>

### February 14 & 16 Causality

*How do we define if something is causal?*

<http://www.socialresearchmethods.net/kb/intval.php>

<http://www.socialresearchmethods.net/kb/causeeff.php>

**February 21 & 23 Describing Univariate Data**

*How do we describe a phenomenon*

No Readings

**February 28 & March 2 Univariate and Scatter Plots and Review**

No readings

**March 7 & March 9 Midterm**

**March 7: Online Midterm during class time**

March 11: Introduction to Regression

**March 14 & 16 Simple Regression**

Chapter 3 Sections 1 through 4

**March 21 & 23 Spring Break**

**SPRING BREAK**

**March 28 & 30 Hypothesis Testing**

Chapter 4

**April 4 & 6 Confidence Intervals**

Chapter 4

**April 11 & 13 Multiple Variable Regression**

Chapter 5

**April 18 & 20 Dummy Variables**

Chapter 6 Sections 1 to 3

**April 25 & 27 Interactions and Transformations**

Chapter 6 Section 4 and Chapter 7 Sections 1 to 2

**May 2 & 4 Review and Limits of Quantitative Analysis**

Read: Obermeyer, Ziad, Brian Powers, Christine Vogeli, and Sendhil Mullainathan. 2019 "Dissecting racial bias in an algorithm used to manage the health of populations." *Science* 366(6464): 447-453.

**May 9-14 Final Week**

– Online Final TBD

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## **Additional Resources**

- Howe Writing Center: <http://miamioh.edu/hcwe>
- Students also may occasionally have personal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to call Student Counseling Service (513-529-4634). For emergencies outside of business hours, the Community and Counseling and Crisis Center (844-427-4747) has a 24-hour hotline.
- Students come to Miami from a variety of economic backgrounds. If you are having financial trouble I urge you to make use of the services available through Miami Cares Resources: <https://www.miamioh.edu/emss/offices/student-success-center/miami-cares/index.html>