

# Quantitative Methods for Political Science

Course Introduction  
August 31, 2022

# Political Science Research

- Can think of political questions as involving value and/or fact:
  - Facts: What is?
    - Example: Does the state of the U.S. economy influence the outcomes of presidential elections?
  - Values: What ought to be?
    - Example: Is it good for democracy for economic perceptions to affect voters?
- But, value related questions often have facts behind them
  - E.g., economic perceptions (e.g., unemployment) do predict election outcomes
- Need to know how to evaluate evidence for certain claims

# Quantitative Methods—Big Picture

- In this class, will cover basics of statistical analysis:
  - Describing data and distributions, examining two-way relationships/correlations
  - Inference—how confident can we be that results from a sample generalize to a population?
  - Some discussion of research design—sampling etc.
- Important topics we are not covering in detail:
  - Theory development
  - Measurement
  - How to identify and incorporate control variables
  - Data generation

# Steps for Empirical Political Research

1. Identify research question
  - Ideally, interesting and important (substantively and/or theoretically)
2. Measure concepts
  - Conceptual definition
  - Operational definition
  - Variables
3. Describe variables
  - Range, distribution, etc.
4. Survey literature
  - What do we already know (or think we know) in answer to the question?

# Steps for Empirical Political Research

5. Develop theoretical argument which answers the question
6. Derive hypotheses
  - Identify Independent and Dependent Variables
7. Design a study to properly test hypotheses
  - Think about “what else” could affect DV
8. Collect data
  - Identify population and sampling strategy
9. Test hypotheses
  - What is the direction of the relationship between IV and DV?
  - How confident can we be that a relationship in the sample means there is a relationship in the population?
  - How big of an effect does IV have on DV?

# Course Goals

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Three main goals:

1. Make you a better consumer of political research
  - Should help in other classes
2. Give you basic skills in statistics
  - Includes learning to use statistical program R
3. Prepare you for higher level methods classes

# Logistics

- Meet here Wednesday 12:30-3:15
- Lab & Discussion Section Friday 3:00-5:00
  - TA: Hansol Kwak
- Grading:
  - 2 Midterms, 1 final—all taken at elms
  - Homework Problem Sets—most weeks of the semester
- Problem sets, class announcements, lecture notes, etc. will be posted on elms