

## **PSCI 2300 • Intro to Poli Sci Research Methods (Fall 2019)**

**Dr. Paul Hensel**

### **Review Sheet for Exam #1**

#### **Exam Format**

- This examination will feature 40 multiple choice questions.
- All needed exam materials (such as Scantron sheets) will be provided for you, except for your preferred pencil (and eraser, if needed).
- No books, notes, or other materials will be allowed during the exam.
- Note that no bathroom breaks are permitted during the exam -- once you leave the room, you can't return without a five letter grade penalty.
- Also, be on time -- once the first person finishes and leaves the room, anybody else who enters will suffer an automatic deduction of five letter grades; be aware that students sometimes finish exams like this in as little as 5-10 minutes.

#### **Advice on Studying**

- The number of questions on each topic in the exam will (approximately) reflect the relative time spent on each topic in the course. A topic that was covered over two lectures should thus have approximately (but perhaps not exactly) twice as many exam questions as a topic that only lasted for one lecture.
  - The exam will draw from both the assigned readings (including both textbook and assigned journal articles/book chapters) and the lecture notes. As many as 1/3 of the exam questions will be drawn from materials in the readings that were not covered at all in lecture, with the rest reflecting topics that were only covered in lecture or were covered in both lecture and the readings. If you missed one or more days of class, be sure to get a copy of those notes from somebody who was there.
- Note that in the past, questions drawn from the readings (even on concepts or topics specifically listed on the review sheet) have produced the lowest scores of any questions on the test, so you should take special care to study these topics on the review sheet.
- The exam will not be written with the intention of fooling students with trick questions or with the goal of failing as many students as possible. The main goal of this course is to provide students with an understanding of how Political Science research works, so the exam questions will reflect this goal.
  - The list of topics on this review sheet is not legally binding; these are just suggestions for the most important topics that are most likely to be on the test (some of which may not actually appear on the test). If you understand all of these topics you are much more likely to do well on the test.

## Topics Covered in This Portion of the Course

### The Scientific Approach to Knowledge

- Goal of science
- Meaning of science as an empirical approach (not normative, facts not values)
- Importance of falsifiability, support vs. "proof"
- Probabilistic nature of social science
- Importance of uncertainty in science (explicit about levels of confidence/uncertainty,  $p < .05$  standard)
- Importance of generalization in science
- Independent and Dependent Variables
- Hypotheses and Theories: definitions, importance, evaluation/testing
- How to identify a good research question/puzzle
- How the scientific research process works (choose question/puzzle, develop theory & hypothesis, set up research design, analyze data, interpret results, further implications / fix or abandon theory)

### Additional Topics from the Readings (Paulos article; Pollock chapter 3 excerpts)

- *More details on topics covered in lecture*
- Paulos: Type I and Type II errors
- Paulos: Scientific vs. informal polls/surveys

### Research Design and Causality

- Experimental design: test/treatment group vs. placebo/control group, randomization, experimental control of all other factors, compare DV pre- and post-treatment
- Internal validity of experiments, potential problems with experiments in social sciences
- External validity of experiments, potential problem of selection bias
- Difference between covariation and causation
- Confounding variables: spurious, additive, interactive relationships
- Guidelines for assessing causality without experiments
- Quasi-experimental design: purpose, similarity to experiments (test/treatment and control group), implications for internal and external validity (compared to both true experiments and non-experimental designs)
- Statistical control: basic idea/purpose, implications for internal and external validity
- Single case studies: useful purposes, limitations
- Comparative method: most similar (MSS) and most different (MDS) systems designs: purpose of each, implications for internal and external validity
- Importance of standards of evidence in case studies (or research papers/data collection)
- Types of evidence: primary, secondary, tertiary sources
- Possible biases in any type of courses
- Guidelines for detecting source biases, avoiding research bias

### Additional Topics from the Readings (Pollock chapter 4; Ansolabahere et al. article; Campbell & Ross article; Ishiyama article; Munck & Leff article; Thies article)

- *More details on topics covered in lecture*
- Rival explanations
- More details on experimental design (including field experiments)
- More details on controlled comparison (the book went into much more detail than we could in class)
- More details on spurious, additive, and interaction relationships
- Ansolabehere et al.: understand why they chose an experimental approach, how it helped them, and what they found

- Campbell and Ross: understand why they chose a quasi-experimental approach, how it helped them, and what they found
- Ishiyama: understand why he chose a most similar systems design, how it helped him, and what he found
- Munch & Leff: understand why they chose a most different systems design, how it helped them, and what they found
- Thies: more details on the selection and evaluation of source materials, ways to minimize bias

### **Political Science Research Skills**

- Sections of a typical research article (typical contents and practical advice):
  - Abstract and Introduction
  - Literature Review
  - Theory
  - Research Design
  - Empirical Analyses
  - Conclusions and Implications ("Discussion")
- Literature reviews: importance, what to look for, where to look, how to organize and write it
- Citing your sources: why, when, how

### Additional Topics from the Readings (Powner chapter; Knopf article; Hensel web page)

- More details on the purpose and importance of literature reviews
- More details on searching for and organizing literature
- More details on writing a literature review
- More details on why, when, how to cite

### **Concepts, Variables, and Measurement**

- Concepts and Variables
- Operationalization: basic idea, general procedure
- Measurement error: systematic error (measurement bias) vs. random error
- Validity: definition, ways to assess (face validity, content validity, construct validity)
- Validity: definition, ways to assess (test-retest, alternative form)
- Benefits & drawbacks of using existing data sets
- Benefits & drawbacks of collecting your own data

### Additional Topics from the Readings (Pollock chapter 1; Mondak & Sanders article)

- More details on concepts, especially conceptual dimensions and multidimensional concepts
- Ecological fallacy
- More details on measurement error, reliability, and validity
- Mondak and Sanders: compare their measure of tolerance (and its implications) to earlier work