

## **PSCI 2300 • Intro to Poli Sci Research Methods (Spring 2018)**

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### **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. 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 workbook) and the lecture notes. Around 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

#### Topics Covered in Lecture

- How science differs from other sources of knowledge
- Meaning of science as an empirical approach (not normative, facts not values)
- Importance of generalization in science
- Importance of falsifiability, "proof," null hypotheses
- Probabilistic nature of social science
- Importance of uncertainty in science (explicit about levels of confidence/uncertainty,  $p < .05$  standard)
- Hypotheses and Theories
- Independent and Dependent Variables
- 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 (Pollock chapter 3 excerpts)

- *More details on topics covered in lecture*

### Research Design and Causality

#### Topics Covered in Lecture

- Experimental design: test/treatment vs. placebo/control group, randomization, experimental control
- Internal vs. external validity of experiments, potential problems with experiments in social sciences
- Difference between covariation/correlation and causation (and reasons why)
- Confounding variables: spurious, additive, interactive relationships
- Guidelines for assessing causality without experiments
- 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
- Controlled comparison as a solution for confounding variables
- Quasi-experimental design: purpose, implications for internal and external validity (compared to both true experiments and non-experimental designs)
- Non-experimental quantitative designs: basic idea (statistical control), implications for internal and external validity

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

- *More details on topics covered in lecture*
- Rival explanations
- More details on experimental design
- 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
- Ansolabahere et al.: understand why they chose an experimental approach, and how it helped them
- Campbell and Ross: understand why they chose a quasi-experimental approach, and how it helped them

### Concepts, Variables, and Measurement

#### Topics Covered in Lecture

- Concepts and Variables

- Operationalization: basic idea, general procedure
- Units of analysis
- Nominal, Ordinal, Interval, and Ratio-level variables
- Additive indexes
- Measurement error: systematic error (measurement bias) vs. random error
- Ways to assess validity: face validity, construct validity, content validity
- Ways to assess reliability: panel designs (test-retest, alternative form), cross-section designs (split halves, Cronbach's alpha), inter-coder reliability
- Benefits & drawbacks of using existing data sets
- Benefits & drawbacks of collecting your own data
- Basic idea of survey research: obtain information from a small representative sample, to make inferences about a larger population
- Approaches to representative sample: random samples (from various populations), stratified/quota samples, weighting, convenience sampling
- Approaches to collecting survey information: face to face, telephone, mail-in, online
- Survey advantages, impact on internal and external validity
- Survey disadvantages: wording, assume honest, time from event, response rate, representative samples

Additional Topics from the Readings (Pollock chapter 1; Mondak & Sanders article; Pollock chapter 2)

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

**Reading Political Science Research**

Topics Covered in Lecture

- 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
- Citing your sources: why, when, how

Additional Topics from the Readings (Powner chapter)

- 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