Exam 1 Study Guide

Undergraduate Research Methods in Psychology

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1 Exam 1 Format & Structure

From the syllabus:

- Each exam is 50 multiple-choice questions, 2 points for each question.
- Exams will be taken at the start of the class period, but after the quiz review for the prior week. They will be paper forms (i.e., not on Blackboard).
- Exams are timed, 113 minutes total (previously was 75 minutes).
- Exams are **not** open-note, open-book, or collaborative. You are **not** permitted to use any form of assistance to aid you during the tests. Do not discuss the test with other students, even after it has concluded.
- Any indication of academic dishonesty or "cheating" will be investigated thoroughly and will result in an automatic 0 on the exam for offenders
- Exams will be ended early if all students are clearly finished and content with their answers.
- Exams will be graded promptly and reviewed the following week.
- Exams will contain content from the entire unit, from lectures, readings, and other class activities. This will include content from weeks/chapter 1 though 6.
- Exams will not be purely vocabulary-based, students should have a solid understanding of applications of concepts, ideas, and theories.

2 Using This Study Guide & Other Resources

This study guide is meant to help get students started with guided questions and tasks that will aid performance on Exam 1. It is laid out as examples and open-ended questions to provoke thought on the most pressing questions of each chapter. You may consider using the slides, recorded lectures, and textbook to help you address each part. However, there are other valuable resources you may use to help you prepare:

- Review the textbook and professor learning objectives throughout the slides and chapters.
- Use the questions ("Check Your Understanding") throughout the chapters to quiz yourself and use the lengthy review sections at the end of each chapter to get a nice sampling of practice activities.
- Use the results and answers from the weekly quizzes to identify areas of need for studying.
- Make flashcards for important vocabulary.

- Re-watch recorded lectures to see if you missed any classes and to ensure you haven't missed any critical content.
- If you exhaust your other options for reviewing content, please feel free to ask me questions as well.

If you wish to perform your best, you should use a combination of all of these available resources to help you prepare. Furthermore, I make no guarantee that this study guide will contain *all* the information on the exam - it is the student's responsibility to review all materials related to the first 6 weeks of content.

3 Chapter/Week 1

- What is a research **producer**? What is a job title this person is likely to have? What sorts of activities is this person likely to perform?
- What is a research **consumer**? What is a job title this person is likely to have? What sorts of activities is this person likely to perform?
- Describe the procedures, findings, and structure of Harlow's monkey study to investigate cupboard theory vs. contact comfort theory.
- Describe the concept of **Empiricism** and its relationship to the **Theory-Hypothesis-Data Cycle.** Define and explain each individual part of the cycle.
- How are Empiricism, the process of **reproducing** scientific studies, and the **self-correcting** nature of science related?
- What are **Merton's 4 Scientific Norms**? Be able to give definitions of each and examples of behaviors that support these norms.
- Why don't we use the word "prove" in science, and why do we prefer using the **weight of evidence** to describe support for a claim? Write out an example of what an improper claim statement (i.e., one being too certain) may look like, and then give a "fixed" version of that statement.
- What are the 3 contexts/types of research? Give an example of a study that would be described as each type.
- Compare and contrast the methods and trust-worthiness of **scientific journalism** and **scientific articles published in peer-reviewed journals.** See if you can find an example of both types, or better, find a piece of journalism and then the original article the journalism was based upon.
- What citation style do we use in this course? What are the core, important components of a full citation (Like that found in a "References" section)? Looking at the information of an article, try to type out the correct formatted citation for it. What are some shortcuts in Google Scholar or scientific databases to get the citation information?

4 Chapter/Week 2

- What are the 4 sources of knowledge or information we can draw from? Which of these is the most sound?
- Why do we consider research to be superior to **authority**? Provide 2 examples of faults in trusting authority.
- Why do we consider research to be superior to **personal experience**? Provide 2 examples of faults in relying on personal experience.
- Why do we consider research to be superior to **intuition**? Provide 2 examples of biases in intuition.
- Describe the dangers of **confounds** and having no **comparison groups.** What issues do these introduce? Describe an example of a confound.
- What does is mean that research is **probabilistic**? How does this affect how we apply research findings to individual people?
- Describe the 6 biases we discussed in intuition. Write an example of each bias.
- What is the difference between an **original empirical article,** a **literature review**, and a **meta-analysis?** Try to find an example of each of these using the techniques we learned to find research.
- What type of search engine should I use in order to find *peer-reviewed* journal articles? Give two examples of appropriate tools. Find a scientific article that is specifically about traumatic brain injury and recovery.
- What are the procedures for fully inspecting a research article before using it?
- Why are books in science generally less valued as a source, compared to scientific journal articles? Connect this back to criticisms of authority.

5 Chapter/Week 3

- Define a **variable** and a **constant**. Give an example of each in a research setting.
- What are the 3 different **scales of measurement** for variables? Give an example of a variable of each type.
- What is the difference between a **measured** and **manipulated** variables? What are some reasons a measure may have to measured, and could not be manipulated?
- Compare and contrast **construct** and **operational** variables. What are examples of both of these? For the construct of anxiety, propose a simple operational measure.

- What are the 3 types of **claims** we can make? Give one example of each type and a few keywords that signal each type of claim. Which of these claims requires the "hardest" burden to investigate?
- What statistical and graphical methods do we have for presenting information about associative claims? How does one interpret each of these?
- What are the three specified criteria that must be met that allow us to determine causation between two or more things?
- What are the 4 **claim validities** for examining scientific claims? For each validity, give one example of a detriment and one example of a benefit. Which of the validities is only really applicable to causal claims?
- Describe some primary issues in the conclusions of Mak et al. (2023; the article we walked through in class). With each one of the validities, how well does the article meet them?

6 Chapter/Week 4

- In the case of Prof. Gino of Harvard Business School, what were the primary accusations levied against her, and what was her response? What were the consequences of her actions?
- Be able to explain the general structure and goals of the **Tuskegee Syphilis Study** and the **Milgram Obedience Studies**.
- Describe the questionable/bad ethics of the Tuskegee Syphilis Study and the Milgram Obedience Studies. In what way did these studies cause undue harm or fail the participants? Connect these failing to specific principles or guidelines in the **APA Code of Ethics**.
- Enumerate the 3 principles of the **Belmont Report** and the 5 principles of the APA Code of Ethics. Be able to define each of these *in detail.*
- Describe the relationship between **informed consent**, **deception**, and **debriefing**. In what cases would deception be allowed?
- What are the governing bodies for ensuring ethical research procedures at any institution? In what ways can they influence and regulate ongoing projects?
- Explain the difference between the two types of **research misconduct** - which type was Prof. Gino (credibly) accused of?
- The first chapter mentioned **"Pre-registration"** of hypotheses - which of the APA Code of Ethics does this best relate to?
- Describe a situation where ethics and study validity may be at odds or in conflict. What is an example of a study that would be scientifically valid, but not ethical?

7 Chapter/Week 5

- What type of variable requires a **conceptual definition?**
- What are the 3 types or mediums of psychological measures? Provide an example of each type and describe what these might look like in practice.
- What is the relationship between measurement **reliability** and **validity**? What claim validity do these both fall under?
- Describe the concept of reliability: what is a good synonym for it? Provide a real life example of something "unreliable" in the measurement sense. What are the 3 types of reliability discussed in class?
- What is the most common graphical and statistical method to assess reliability? How does one interpret each of these graphs and statistics? (You do not need to know how to calculate statistics, but you should know what certain values would imply)
- Define measurement validity - what is a good synonym for it? What are the 5 types of measurement validity we discussed in class? Which of these are the "weakest" or the most subjective?
- What are the two methods by which to investigate **criterion validity**? What sorts of analyses do we use in the case of either type?
- Using the visual analogy of targets (as presented in class), what would a reliable, but invalid tool look like?
- By what methods can we find established measures for common psychological constructs? How is this similar to searching for scientific literature?

8 Chapter/Week 6

- When we use the terms **survey** or **pool** what type/medium are we referring to? What are the roughly 4 types of questions we talked about in class? Write an example of each question type.
- What are the 4 threats we discussed in how questions are written? What are the available solutions to address each one of these threats?
- Describe what a **response set** is and why it is undesirable in participant responses. What are the 3 to 4 response sets we talked about, and how can we attempt to prevent them in our research?
- Describe the concerns in long-term memory and peoples' ability to introspect on *why* they do something, which could affect our survey results?

- Describe the difference between an **observational measure** and a **self-report** one. Why might a psychologist see one as more “objective” than the other?
- What are the 3 major concerns to measurement validity in observational measures? Give an example of each one of these occurring and how we might solve each.
- In what ways may we choose to use deception in observation tools to enhance validity?

9 Inter-chapter Questions

These questions are meant to compound different ideas from the lecture and synthesize what we have learned so far. They are difficult, but also realistically how complex research normally is.

- I want to run a study observing people at my local mall and their shopping and impulsive buying tendencies - what sort of consent do I need from the participants? If I want to give them a self-report form, and interact with them directly, does that change how I need to get consent? Is there an existing measure for understanding shopping tendencies I can find somewhere? If I need to make a new measure, what sorts of questions do I put on it?
- I want to publish research that I did as (hypothetically) a high-school student. I didn’t have any supervision but I planned and ran it all just fine, it was a study about giving supplements to people and seeing their reactions over time. Now I can’t get any journal to publish it, only because I am a high school student and don’t have credentials. What scientific principals may be violated here, both by journals and by the student?