

**Florida State University College of Criminology and Criminal Justice**  
**Ph.D. Comprehensive Examination in Research Methods and Statistics, Fall 2022**

**DAY 1 OF THE EXAM**

**INSTRUCTIONS:**

Answer one question from each of the two sections below. Please notify the proctor when you are finished. Please note: Once a student takes possession of the examination at the start of the exam period, this constitutes an attempt at taking the exam, regardless of whether the student completes the exam, hands in any answers, or remains for the full exam period.

**I. RESEARCH DESIGN**

1. In non-experimental designs, non-equivalent comparison groups are a common way to approximate the counterfactual condition. Explain ways in which the inclusion of a comparison group can address, and ways in which it fails to address, threats to a study's internal validity. Illustrate your explanation with a discussion of three specific threats to internal validity. Describe a strong method for identifying a good comparison group.
2. Explain in exactly what way research is weakened by each of the following flaws in a research design.
  - you do not have a control group
  - you cannot control which subjects are exposed to the treatment and which are not
  - you can randomly assign subjects to experimental and control groups, but you have post-test measurements only and no pre-test measurements
  - you cannot do random assignment of subjects to treatment and control groups, and must do matching instead

**II. DATA GATHERING**

3. Critics of Moffitt's (1993) dual taxonomy pointed to the presence of an additional offender group, not specified in the original theory—adult-onset offenders. Such offenders do not begin engaging in criminal behavior until adulthood, when other groups had already initiated the process of desistance. After closer scrutiny, it was realized that this potential offending trajectory was actually an artifact of official convictions records data. This finding raises questions regarding pairing proper data with appropriate research questions. Provide a summary of the key strengths and limitations of official records data and self-report offending data. Then, provide an example of a research question that would be most appropriate for each type of data, making sure to specify how the question emphasizes the strengths and minimizes the limitations of each type of data.
4. When testing the relationship between an independent variable and a dependent variable, we typically control for other variables. First, explain why it is important to control for other variables. Next, describe the characteristics of an effective control variable. Last, explain how you would decide which variables to include as controls in your statistical model. Why not control for as many variables as we possibly can?

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**DAY 2 OF THE EXAM**

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**III. STATISTICS**

5. Describe the most suitable statistical methods for each of the following outcomes and describe the research situations in which you would use them, why it is appropriate, and why other methods may not be appropriate.
  - Continuous outcomes
  - Binary outcomes
  - Count outcomes
  
6. In criminological research, we often construct indexes and scales to measure our key concepts. Provide at least two distinct reasons why a researcher might want to construct an index or scale. Now imagine that you need to construct a neighborhood disadvantage index or scale. Provide a detailed description of two different methods that you could use to construct such a measure. What are the advantages and disadvantages of each method? How would you assess the reliability of the scales?

**IV. DATA INTERPRETATION**

7. Interpret the findings of the attached article by Nivette, et al. (2017). This means that you should tell what the results mean with respect to the goals of the researchers and what they were trying to find out, just as if you were writing the Results and Discussion/Conclusion sections of the journal article. Do not merely repeat in words what is already shown in numbers in the tables. What conclusions would follow from the results? What problems with the methods might undermine or weaken these conclusions?
  
8. Interpret the findings of the attached article by Partin & Lehmann (2021). This means that you should tell what the results mean with respect to the goals of the researchers and what they were trying to find out, just as if you were writing the Results and Discussion/Conclusion sections of the journal article. Do not merely repeat in words what is already shown in numbers in the tables. What conclusions would follow from the results? What problems with the methods might undermine or weaken these conclusions?