

Florida State University College of Criminology and Criminal Justice
Ph.D. Comprehensive Examination in Research Methods and Statistics,
Fall, 2011

Instructions:

There are four sections to the exam. Answer one question from each section. You have until 4:00 PM to finish. If you have problems with the exam, you may consult with faculty proctoring the exam: Brian Stults (Room 317), 8:00-10:00 AM; Dan Mears (Room 308), 10:00 AM to Noon; Bill Bales (Room 324), Noon to 2:00 PM; Gary Kleck (Room 306), 2:00-4:00 PM. Please notify Margarita Frankeberger (Room 216) when you are finished and ready to have your exam answers printed out. *Please note:* Once a student takes possession of the examination at 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. Experiments have been described as providing the basis for the most credible estimate of a policy's impact. An experimental design typically is not feasible when undertaking community-level interventions. Given that, how would you conduct a study that would provide a credible assessment of the impact of community policing? In answering this question, (a) describe community policing, (b) describe and defend the number of sites that you would use to conduct the study, (c) describe and defend the measures that you would use, (d) describe and defend the analysis plan that you would use, and (e) identify the limitations of your design and why it is nonetheless preferable to alternatives.

2. Researchers are often interested in whether criminological outcomes are affected primarily by individual characteristics, contextual characteristics, or both. Imagine you have been asked to conduct a survey that examines the individual-level predictors of drug use among juveniles, while also evaluating the influence of contextual characteristics. Describe the research design you would employ, including a discussion of the following elements:
 - (a) the sampling method you would use
 - (b) your measurement strategy for the dependent variable
 - (c) how you would incorporate contextual characteristics
 - (d) potential limitations of your design

II. Data Gathering Methods

3. The problem of missing data is always a concern in survey research. (a) Describe some of the potential reasons for missing data and the threats that it poses. (b) What techniques can we use to avoid missing data? (c) When analyzing the data we have collected, what methods can we use to deal with missing data?

4. A fundamental problem in crime research is accurate measurement of the frequency of criminal behavior. Self-report surveys try to get respondents to confess to the crimes they have committed. Explain the survey strategies that can (a) encourage more complete and accurate self-reports of criminal/delinquent behavior, and that can be used to (b) test the validity and reliability of responses to the self-report questions.

III. Statistics

5. Most theories of offending seem to imply that a causal force (X) exerts a linear effect on offending (Y). (a) First, describe at least three distinct types of nonlinear X-Y relationships and the statistical approach would you use to identify that a statistically significant nonlinearity existed. (b) Second, describe the problems with failing to model nonlinear relationships. (c) Third, what are the theoretical implications of a situation in which a theory posits a linear X-Y relationship but the relationship really is nonlinear? To answer this question, (d) select a theory, (e) argue for a particular type of nonlinearity, (f) describe how you would test for it, and (g) describe the implications of a positive test (one showing nonlinearity) for the theory.

6. Researchers often place great emphasis on whether their results are statistically significant. Thoroughly describe the concept of statistical significance with regard to an OLS regression coefficient. What does it mean to say an effect is statistically significant, and what are some of the factors that influence significance tests? Your answer should include, but not be limited to, a discussion of concepts such as the sampling distribution, the t-statistic, and Type I and Type II error.

IV. Data Interpretation

7. Interpret the findings of the attached article by Crutchfield and Pitchford. 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?

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8. Interpret the findings of the attached article by Huiras et al. 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?