

**Florida State University College of Criminology and Criminal Justice**  
**Ph.D. Comprehensive Examination in Research Methods and Statistics, Spring 2012**

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: Sonja Siennick (Room 325), 8:00-10:00 AM; Brian Stults (Room 317), 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. Criminologists rarely have the opportunity to randomly assign offenders to the programs that they wish to evaluate. Suppose that you have been asked to study the impact of electronic monitoring on recidivism in a jurisdiction that will not permit random assignment of offenders to conditions. Propose a strong quasi-experimental design for your study. Explain how specific features of your design help overcome the absence of random assignment. Explain any weaknesses of your design for causal inference.

2. You are designing a study to determine the effect of inmates completing vocational training in prison on the probability of employment and recidivism post-release. Describe at least two research designs you would employ in your study and discuss the advantages and disadvantages of each design in terms of their effectiveness in identifying equivalent experimental and control groups to ensure any differences in the treatment effect is not a result of non-equivalency in the two groups or selection bias. Additionally, indicate which design you would use and the reasons for this preference.

**II. Data Gathering Methods**

3. One of the important data collection challenges that face criminologists is obtaining valid and reliable estimates of the volume of crime in a specified geographic area. Discuss the primary methods of data collection that could be fielded to estimate the volume of crime for all census tracts within Tallahassee, highlighting the strengths and weaknesses of each in terms of (a) producing a valid and reliable estimate of the overall rate of crime in each census tract and (b) producing estimates that could be integrated with other data sources to test theories about geographic variation in crime rates.

4. To minimize potential for sample bias, survey researchers invest considerable effort in successfully contacting and gaining cooperation from respondents. Pick one survey mode and describe as many methods as you can for insuring higher response rates when that mode is used.

### III. *Statistics*

5. Describe at least four assumptions of ordinary least squares regression. Describe the consequences of violating each assumption, a method of testing for violations of each assumption, and an alternative method that corrects or accounts for each assumption.
6. Describe (a) the statistical problems that each of the following methods are designed to reduce or eliminate, and (b) the distortions in findings that would arise if the problems were not solved.
  - a. Logistic regression
  - b. Negative binomial regression
  - c. Hierarchical linear modeling
  - d. Ordered logistic regression

### IV. **Data Interpretation**

7. Interpret the findings of the attached article by Teasdale, Clark, and Hinkle. 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 Yule and Griffiths. 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?

.....