

Doctoral Qualifying Examination

Department of Criminology
Fall 2011

Methods and Data Analysis

The student's personal items will be kept in the office of the graduate director during the exam. The student will be provided with a writing pad, computer, pen, and exam.

During the examination period of 8 a.m. to 4 p.m., the student must not utilize any outside resources. The student may not confer with any people or refer to any books, articles, etc. Students are on their honor to produce their own work on their exams. The University subscribes to a document-checking service that can be used to assess plagiarism; the Department of Criminology reserves the right to submit any examination to this service for evaluation.

Responses to exam questions may be typed; student should double-space and use a 12-point font. Students who use computers will save their exam as a single MS Word document to the notebook computer provided by the Graduate Director.¹ Students may hand write their exams; the exams will be typed up by a staff person and the committee will receive both the typed and hand-written copies.

Students may not withdraw from the exam after receiving it; if the student does not complete and turn in the exam, it will be recorded as a failure. Exam responses must be submitted to the graduate director by 4 p.m.

Pick any four of the following 8 questions. For each, write an essay the scientific style of which resembles that found in scholarly peer-reviewed journal articles. Students should provide in-text citations to the best of their abilities; a reference list is not required. There are no minimum or maximum page limits.

1. You are designing a study to determine the effect drug use has on violent crime in order to derive causal statements about the link between these two behaviors. First, explain how you would approach this study using a longitudinal design. Second, assume you do not have the time or resources to collect data over time and must conduct your study using a cross-sectional approach. Describe this approach and, in so doing, explain what steps would be taken to approximate a longitudinal study as much as possible. Finally, explain what limitations your cross-sectional design has in terms of approximating any causal link between drug use and violent crime.
2. You are writing a grant proposal to study the effectiveness of a prisoner re-entry program that exists in Florida. Explain the methodological approach you would take to conduct this study, the variables you would measure, and the population you would study. Note that the funding agency requires that characteristics of the individuals as well as the contextual characteristic of the location to which inmates are released be considered in the evaluation. Explain how you would approach these requirements from a conceptual, measurement, and analytic perspective.
3. Select a research topic based on your knowledge of the literature in criminology and criminal justice. Identify a research question that needs to be addressed and hypotheses that need to be tested. Develop a research design that addresses the research question and tests the hypotheses. Describe your design in a way that can be understood by those with a thorough understanding of research methodology, but who may not have a specialized knowledge of the particular areas of research you have chosen. Be sure to discuss and justify the methods of data collection and operationalization of variables. What are the strengths and limitations in the research design you have proposed relative to previous studies in the literature?

¹ The exam computers are checked before the exam. All non-program files are removed, Internet access is blocked, and the computers are locked up until exam time. After the exam, software is used to detect use of USB ports.

4. You want to do a qualitative field study of gang members, their gang activities and their own perceptions about their gang-related activities. Explain how you could solve the following problems.
 - a. Gaining access to the population and making contact with potential subjects
 - b. Gaining the confidence of informants
 - c. Gaining information about specific topics without appearing to “interrogate” your informants
 - d. Recording what your informants tell you, but without using technological aids such as audio or videotape that might jeopardize your relationship with informants.

5. Recidivism research is an important component of criminological research, especially when determining the effectiveness of educational, vocational, and substance abuse programs. Researchers commonly use logistic regression or survival analysis to build multivariate models to measure the predictors of recidivism. This question requires you to compare and contrast logistic regression and Cox proportional hazards survival analysis. For each technique, explain the kinds of research questions addressed, its key concepts (e.g., odds ratio, hazard ratio), model testing methods (e.g., statistical significance of full model and individual variables), and resulting statistics. Be sure to point out in your discussion differences and similarities between these two analytic techniques.

6. Choose 6 of the following 10 pairs of terms. Define each term in the pair. Be sure to compare and contrast the terms within each pair.
 - a. internal validity vs. external validity
 - b. reliability vs. validity
 - c. experimental group vs. control group
 - d. central tendency vs. dispersion
 - e. parametric vs. non-parametric
 - f. experimental design vs. quasi-experimental design
 - g. random sampling vs. cluster sampling
 - h. correlation vs. causation
 - i. descriptive statistics vs. inferential statistics
 - j. Type I error vs. Type II error

7. Give a thorough description of the concept of the sampling distribution of an OLS regression coefficient. What is it? What do we know about its characteristics? How do we use it to test hypotheses about empirical relationships? What does it mean, in terms of this distribution, when we accept or reject a hypothesis? Your answer should be detailed, and it should include, but not be limited to, concepts such as alpha level, probability, Type I and Type II errors, and true versus estimated values.

8. Explain in exactly what way research is weakened as a result of each of the following flaws in a research design.
 - a. The researcher does not have a control group
 - b. The researcher cannot control which subjects are exposed to the treatment and which are not
 - c. The researcher randomly assigns subjects to experimental and control groups, but has post-test (after the intervention) measurements only, no pre-test measurements
 - d. The researcher cannot do random assignment of subjects to experimental (treatment) and control groups, and must do matching instead.