

**Doctoral Qualifying Examination
Methods and Data Analysis
Department of Criminology**

Spring 2019, Version 2

Exam Rules:

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 5 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 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 Exam Proctor by 5 p.m.

Security: The computers have been stripped. After the fact, the computers will be checked to determine if any flash drive has been inserted or if the internet has been accessed. **DO NOT ACCESS THE INTERNET FOR ANY REASON.** The Graduate Director will have visual/audio contact with the room for the exam period.

There is a single Word file on the desktop with the exam. Write your answers IN that document (which includes the exam questions). You, your computer and your exam have a number that identifies you. Do not change the name of the file; do not include your name IN the exam file. You may print to the printer in SOC 351.

When you are finished, submit your completed exam to the Graduate Director.

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.

Exam Instructions: You must pick at least **one** question from section one (questions 1-3). (This is to ensure that you answer a question that requires a research design.) Then pick **any three** of the remaining questions (1-9). In total, you will answer 4 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.

Section 1: Design a Study

1. You are writing a grant proposal to study the effectiveness of a Florida program to address police misconduct. Describe your program, and how you would measure fidelity and adherence. Explain the methodological approach you would take to conduct this study; the population(s) you would study; the independent, dependent and control variables (if relevant) you would measure. 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, so that you can determine for whom the program is most effective. Explain how you would approach these requirements from a conceptual, measurement, and analytic perspective. Justify all aspects of your proposed study and identify strengths and weaknesses.
2. You are designing a study to determine the effect of a particular individual-level crime correlate on violent crime. You may pick your own known correlate of violent crime, such as drug use, gang membership, poverty, to name just a few. First, explain how you would approach this study using a longitudinal design in order to examine the utility of this known correlate for explaining variation in violent crime. 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 how you would approach this research question using a cross-sectional design. Third, explain what limitations your longitudinal and cross-sectional designs have. And, finally, for each of your designs (longitudinal and cross-sectional), indicate the data analysis techniques you will use in order to estimate the effect of your selected known correlate on violent crime. Explain why you chose those techniques.
3. Criminologists often lament the lack of experimental control in testing the impact of policies and programs. Instead, the argument goes, they have to depend on statistical controls often made by comparing groups not randomly assigned to control and experimental conditions. Such concerns ignore the often robust controls found in naturally occurring experiments. Supreme Court decisions, changes in criminal law, and new policy directives often provide methodologically defensible opportunities for assessing the impact of policy changes. Choose one of the policies/interventions below and identify a naturally occurring experiment [of the past two decades (1998-2018)] and explain how you could conduct a research project to test the effectiveness of the policy change/intervention. Describe all aspects of your study including the analytic plan. Be sure to discuss how a natural experiment is similar to or deviates from a traditional experimental design.
 - a. Harm reduction in drug use
 - b. The impact of prison over-crowding on recidivism
 - c. The impact of police staffing (office/citizen ratios) on crime
 - d. Police transparency and citizen attitudes toward the police

Section 2: Methodological Issues

4. When analyzing data quantitatively, scholars must consider statistical significance of parameter estimates as well as effect size. Describe in detail what ‘statistical significance’ means (be sure to discuss p-value, alpha level, null hypothesis, and power). What factors would affect statistical significance of the same estimated parameter (e.g., means, mean differences, regressions coefficients) from the same population? Next discuss in detail the following effect sizes and explain what constitutes small, medium, or large effects for each one: z-score, Cohen’s d, Pearson’s product moment correlation coefficient, odds ratios. Finally, discuss what steps should criminologists take to ensure they provide the appropriate interpretation of statistical significance and effect sizes to lay audiences? **(Regarding Rubric: This questions does NOT have a “Research Methods” knowledge component)**

5. Recidivism research is an important component of criminological research, especially when determining the effectiveness of educational, vocational, and substance abuse programs. Expert opinions on measuring recidivism differ. Some scholars argue that recidivism should be measured by new arrests; other scholars argue that reconvictions should be used as the measure of recidivism. Compare and contrast the merits and problems associated with each of these views of how recidivism should be measured. Which view do you favor? Why? **(Re Rubric: This questions does NOT have a “Data Analysis” knowledge component)**

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. mediation vs. moderation
 - e. normal vs. Poisson distribution
 - f. experimental design vs. quasi-experimental design
 - g. random sampling vs. cluster sampling
 - h. correlation vs. causation
 - i. exploratory factor analysis vs. confirmatory factor analysis
 - j. random effects vs. fixed effects

7. Discuss the statistical assumptions, strengths and limitations underlying ordinary least squares regression, ordered logistic regression, and Poisson regression. Provide a research/analysis example of each procedure, and how to interpret the results. **(Re Rubric: This questions does NOT have a “Research Methods” knowledge component)**

8. You want to conduct a qualitative field study of hate group members (e.g., KKK, Stormfront), their activities and their own perceptions about their involvement in their group. Explain how you could address the following challenges to conduct such a study: **(Re Rubric: This questions does NOT have a “Data Analysis” knowledge component)**
- 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.
 - e. Analyzing data collected in such a study.
9. Discuss the assumptions, similarities and differences among principal components analysis, exploratory factor analysis, and confirmatory factor analysis for continuous and categorical variables. **(Re Rubric: This questions does NOT have a “Research Methods” knowledge component)**