

FEDERATION METHODS AND STATISTICS EXAM

Federated Graduate Sociology Program of:
Texas Woman's University
University of North Texas

Spring, 2000

GENERAL INSTRUCTIONS FOR TAKING EXAM

Before you begin the exam, it is advisable that you read through all the questions. Plan your time wisely. You have until 5:00 pm to complete the exam.

Please **WRITE ONLY ON EVERY OTHER LINE on ONE SIDE** of the paper. Please answer each question thoroughly. Answer in complete sentences. Write as neatly as possible--you will not get credit for what can not be read!

DO NOT PUT YOUR NAME ON THE PAPER

PUT ONLY YOUR ASSIGNED NUMBER_____

Part 1: FEDERATION METHODS

(Spring 2000)

(Remember: WRITE ONLY ON EVERY OTHER LINE on ONE SIDE OF THE PAPER)

A. Define and discuss four of the following methodological topics, using examples to illustrate:

1. The fallacy of ecological correlation
2. Grounded theory
3. Unit of analysis and unit of observation
4. Conceptual and operational definition
5. Guttman and Likert scaling
6. Probability and non-probability sampling

B. **Choose ONE of the following**

1. Describe three threats to internal validity and three threats to external validity
 - a. How should these threats be addressed in an experimental design
 - b. Are these threats to validity a concern for researchers of non-experimental studies? If so, how are these threats dealt with in non-experimental research?

OR

2. Define reliability and validity
 - a. Discuss the relationship between reliability and validity.
 - b. Describe two specific ways that both reliability and validity can be evaluated, and what are possible ways to maximize each in a research study?

C: **Choose ONE of the following**

1. From the stage of pre-entrance to the publication of findings from a field study, describe the ethical problems that field workers confront. Illustrate these problems with specific cases with which you are familiar.

OR

2. You have been asked to design an attitude scale to measure _____(choose any attitudinal dimension). Outline the steps you would take in developing your scale. Address yourself to such research concerns as: a) sampling of item content; b) selecting responses to items; c) selecting a system of scoring items; and d) testing for reliability and validity of items.

Part II: FEDERATION STATISTICS

(Spring 2000)

- A. Define and **relate** each of the following to one another as they apply to conducting a test of statistical significance (it must be shown how they relate to one another in order to correctly answer the question).
1. Research and null hypothesis
 2. Simple random sample
 3. Sampling distribution and standard error
 4. Level of significance and critical region
 5. One-tail and two-tail test
 6. Type I and Type II error (be sure to address why we are concerned with these)
- B. Define and distinguish between the terms in five of the following pairs. Use examples to illustrate.
1. Measures of association and tests of significance
 2. Conditional relationship and partial relationship
 3. Zero order and partial correlation
 4. Independent and related samples
 5. Probability and nonprobability samples
 6. Conceptual and operational definitions
 7. Ordinal and interval level measurement
 8. Correlation and regression analysis
- C. Below are five tables presenting data from research journal articles. Select four of the tables. For each, answer the following questions
1. Identify the measures of association and/or tests of significance used. If you were to review an article containing this table, what comments would you make about the appropriateness of the statistical techniques used?
 2. What meaningful substantive conclusions can you draw from this table?

Table 1: Positive and Negative Citations Of 1961-63 Supreme Court Decisions By the Warren Court (1962-1966) and Burger Court (1970-71)*		
<i>A.. Citation to All 1961-63 Supreme Court Decisions</i>		
	<i>Warren Court</i>	<i>Burger Court</i>
Positive Citations	81.6%	40.7%
Negative Citations	18.4%	59.3%
N=	222	59
$\chi^2=40.6 \quad p<.001 \quad \phi=.38$		

B: Citation to 1961-63 Supreme Court Decisions by Type of Issue in Original Citation (Excluding Noncivil and Noneconomic Liberties Cases)

	Civil Liberties (n=144)		Economic Liberties (n=140)	
	Warren Court	Burger Court	Warren Court	Burger Court
Positive Citations	87.6%	25.0%	52.8%	54.5%
Negative Citations	12.4%	75.0%	47.2%	45.4%
N=	170	32	36	22
	$\chi^2=61.0$ $p<.001$ $\phi=.55$		$\chi^2=.02$ $p=n.s.$ $\phi=.00$	

*Citation data were gathered from the 1964-68 and 1971-73 volumes of Shepard's United States Citations, Cases.

Table 2: Use of Physician Services by Measure of Two Independent Variables

Independent Variable Measurements	Use of Physician Services					(n)
	Low %	Moderate Low %	Moderate High %	High %	Total %	
<i>Physician Affectivity</i>						
Low	19.4	35.5	32.3	12.9	100.1	(31)
Moderate	20.0	22.2	33.3	24.4	99.9	(45)
High	13.0	28.3	37.0	21.7	100.0	(46)
Kendall's $\tau_c=.09$ $p=n.s.$						
<i>Physician Instrumentality</i>						
Low	15.0	20.0	32.5	32.5	100.0	(40)
Moderate	10.0	32.6	41.3	15.2	100.0	(46)
High	27.8	30.6	27.8	13.9	100.1	(36)
Kendall's $\tau_c=-.20$ $p<.01$						

Table 3: Happiness by Work Status, For the Married and Never Married (Aged 50+)		
	Working	Retired
Married		
% "very happy"	40.9%	47.5%
N=	1000	569
$\chi^2=7.3$ $p=.03$		
Never-Married		
% "very happy"	32.45	21.0%
N=	68	62
$\chi^2=4.4$ $p=.11$		

Table 4: Attitudes Toward Change by Organizational and Background Factors				
Organizational and Background Factors	Positive	Neutral	Negative	Total (n)
<i>Job Security</i>				
Dissatisfied	13.8	33.0	53.0	100% (1,589)
Undecided	18.3	36.5	45.2	100% (1,125)
Satisfied	37.2	34.7	28.1	100% (10,979)
Gamma=-.41 $p<.001$				
<i>Organizational Status</i>				
High 1	50.5	31.6	17.8	100% (3,446)
2	37.2	34.3	28.5	100% (3,284)
3	20.9	36.9	42.2	100% (4,951)
Low 4	25.4	35.1	39.6	100% (2,050)
Gamma= .30 $p<.001$				

Table 5: Factors Affecting the Frequency of Contact Between the Elderly and Their Families				
	Equation 1		Equation 2	
	<i>Beta</i>	<i>p</i>	<i>Beta</i>	<i>p</i>
Closeness to family members	.33	.001	.27	.001
Satisfaction with family	.13	.040	-.01	.452
Proximity of relatives	.17	.030	.16	.000
Age of elder			-.07	.177
Education of elder			.11	.037
Income of elder			.04	.395
$R^2=$.21		.23	

