

FEDERATION METHODS AND STATISTICS QUALIFYING EXAM

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

Fall 2007

GENERAL INSTRUCTIONS FOR TAKING THE 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 p.m. 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 cannot be read!

DO NOT PUT YOUR NAME ON THE PAPER

PUT ONLY YOUR ASSIGNED NUMBER _____

Part 1. FEDERATION METHODS QUALIFYING EXAM**Fall, 2007**

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

Please answer A, B, and C.

A. Define and provide an example of **three** of the following:

- a. Grounded theory and case studies
- b. Internal validity and external validity in experimental research
- c. Cross-sectional study and longitudinal study
- d. Guttman scaling and Likert scaling
- e. Ethnography and ethnomethodology
- f. Stratified sampling and multi-stage cluster sampling

B. Select **one** of the following three topics for a quantitative research project:

1. Racial/Ethnic Differences in Health Insurance in the United States
2. Determinants of Poverty Rates in American Cities
3. Explaining Income Inequality: A Cross-National Study

Address the following issues:

- a. identify the dependent variable and one important predictor variable (be sure to define your key concepts, if necessary);
- b. state **one** testable hypothesis and justify it;
- c. describe how you measure the dependent variable and independent variable in your hypothesis;
- d. discuss data collection techniques appropriate for testing your hypothesis;
- e. discuss the appropriate technique(s) of data analysis; and
- f. discuss the limitations of your study.

C. Select **one** of the following three topics for a qualitative research project:

1. Racial/Ethnic Differences in Health Insurance in the United States
2. Employment of Undocumented Mexican Immigrants in Texas
3. Is the Cost for College out of Control?

Address the following issues:

- a. identify the role of theory in qualitative research;
- b. discuss issues of ethics in your research project;
- c. describe the sampling design and recruitment of participants;
- d. discuss data collection;
- e. discuss appropriate technique(s) of data analysis; and
- f. discuss the limitations of your study.

Part 2. FEDERATION STATISTICS QUALIFYING EXAM**Fall, 2007**

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A. For **five** of the following eight pairs, discuss when it is most appropriate to use which technique in the analysis of data.

1. Tests of statistical significance and measures of association
2. Chi-square test and F test
3. Pearson's r and Spearman's ρ
4. t test and Z test
5. Lambda and Gamma
6. PRE and non-PRE measures of association
7. Ordinary least squares regression and logistic regression
8. Event history analysis and hierarchical linear model

B. Answer **one** of the following questions: question 1 **or** question 2.

1.
 - a. State the research hypothesis that could be tested using Table 1a. What is the dependent variable? What is the independent variable? How does the independent variable affect the dependent variable? Is your hypothesis confirmed or rejected? Explain. Cite appropriate percentages and interpret relevant statistics to support your answer.
 - b. Table 1b is an example of elaboration analysis. In elaboration analysis, the relationship between an independent variable and a dependent variable is examined, holding another variable, the "control" variable, constant. What is the control variable in Table 1b? How does the initial relationship between the independent variable and the dependent variable in Table 1a change after the introduction of this control variable into the analysis? Explain, citing appropriate percentages from Table 1b and interpreting the accompanying relevant statistics.
2. Write a brief essay substantively interpreting the logistic regression analysis presented in Table 2.

C. Answer **all** of the questions below.

1. List and briefly explain the assumptions that must be made to use ordinary least squares regression analysis.
2. What does each of the following tell us?
 - a. Unstandardized regression coefficient estimate (b)
 - b. Standardized regression coefficient estimate (β , or Beta)
 - c. Level of significance (α , or alpha)
 - d. Coefficient of determination (R^2)

3. Write a brief essay substantively interpreting Table 3.

Table 1a. Percentage Distribution of Attitudes toward Sexual Permissiveness by Social Class for a Student Sample				
<i>Sexual Permissiveness Attitudes</i>	<i>Social Class</i>			
	Low	Medium	High	Total
Low	51	54	50	51
High	49	46	50	49
Total	100	100	100	100
N	(383)	(189)	(225)	(797)
$\chi^2 = 3.05, p = .08; \text{Gamma} = .01, p = .08$				

Table 1b. Percentage Distribution of Attitudes toward Sexual Permissiveness Attitudes By Social Class and Church Attendance for a Student Sample				
<i>HIGH CHURCH ATTENDANCE</i>				
<i>Sexual Permissiveness Attitudes</i>	<i>Social Class</i>			
	Low	Medium	High	Total
Low	58	74	77	66
High	42	26	23	34
Total	100	100	100	100
N	(262)	(98)	(102)	(462)
$\chi^2 = 15.32, p = .001; \text{Gamma} = -.35, p = .001$				
<i>LOW CHURCH ATTENDANCE</i>				
<i>Sexual Permissiveness Attitudes</i>	<i>Social Class</i>			
	Low	Medium	High	Total
Low	36	33	28	32
High	64	67	72	68
Total	100	100	100	100
N	(113)	(89)	(119)	(321)
$\chi^2 = 8.88, p = .008; \text{Gamma} = .14, p = .008$				

Table 2. Logistic Regression Estimates Predicting Teenage Pregnancy^a, Female Adolescents, National Longitudinal Study of Adolescent Health, 1996

Predictor	b	S.E.	Odds ratio
Age	.312***	(.059)	1.366
<i>Race/ethnicity</i>			
White	-	-	-
Black	.416	(.295)	1.516
Hispanic	.724***	(.315)	2.064
Asian	-.001	(.626)	.999
Other	.840	(.572)	2.317
Parent education (years)	-.191	(.107)	.826
Single-parent family (one parent=1, else=0)	.758***	(.256)	2.134
Poverty (poverty=1, else=0)	-.319	(.221)	.727
GPA (points)	-.180	(.141)	.836
Urban (urban=1, else=0)	-.590***	(.220)	.554
Exposure to intimate partner violence (5-point scale) ^b	1.228***	(.211)	3.416
Constant	-5.553***	(1.152)	.004
Model χ^2		50.82	
Pseudo R ²		.25	
N		5,263	

* $p \leq 0.05$ ** $p \leq 0.01$ *** $p \leq 0.001$

^a Teenage pregnancy is coded 1 for being pregnant and coded 0 otherwise.

^b A higher score indicates a higher degree of exposure.

Table 3. Ordinary Least Squares Regression Estimates Predicting Anti-Pornography Attitudes^a U.S. Adults, 1973-1980 GSS

Predictor	Model 1		Model 2	
	b	β	b	β
Age	.021***	.301***	.021***	.298***
Male	-.326***	-.139***	-.297***	-.127***
South	.065*	.026*	.111***	.044***
Rural residence	.136***	.054***	.095	.038
Rural residence at 16	.111***	.046***	.108	.044
Education (years)	-.042***	-.113***	-.034***	-.092***
Family income (ordinal scale)			.004	.011
Family income at 16 (ordinal scale)			-.036*	-.025*
Occupational prestige			.001	.007
Black			-.426***	-.108***
Catholic			.432***	.161***
Constant	1.011***		.575***	
R ²	.177		.205	
N	6117		5750	

* $p \leq 0.05$ ** $p \leq 0.01$ *** $p \leq 0.001$ (two-tailed test)

^a Measured by a summated rating scale with a higher score indicating a stronger attitude against pornography.

Source: Adapted from Table 2 of Michael Wood and Michael Hughes (1984), "The Moral of Moral Reform." *ASR* 49(1): 86-99.