

**FEDERATION METHODS AND STATISTICS QUALIFYING EXAM**

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

Fall, 2003

**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, 2003**

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A. Answer question 1 **OR** question 2.

1. Select three of the following populations, and, for each, discuss an appropriate sampling procedure and problems you would expect to encounter.
  - a. newspaper editorials
  - b. non-institutionalized adults in the United States
  - c. prostitutes
  - d. students in private elementary and secondary schools in Denton County
  - e. undocumented workers

**OR**

2. Choose one concept from the list below and: [1] define the concept and discuss how you would measure the variable; [2] discuss relevant testing techniques of validation and reliability you would employ; and [3] tell what level of measurement you would obtain.
  - a. attitude toward a current public issue
  - b. competition
  - c. degree of professionalization
  - d. prejudice
  - e. social class
  - f. values

B. For one of the following, develop either a quantitative or qualitative research design. Describe the research design in detail.

1. Design a study to determine the level of job satisfaction among employees in a university setting.
2. Design a study to determine the tendencies of a labor union toward oligarchy or democracy.
3. A zoo asks you to evaluate the popularity of its various exhibits and the characteristics of persons attracted to each exhibit in order to begin a fund raising campaign.
4. Design a study to determine the effects of aging among a population including men and women. Chose three areas of concern, such as attitudes, social participation, health, intergenerational support, etc.

**Part 2: FEDERATION STATISTICS QUALIFYING EXAM****Fall, 2003**

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A. For five of the following pairs discuss what factor(s) must be taken into consideration in choosing between these two statistical techniques for use in the analysis of data.

1. test of significance and measure of association
2. standard deviation and interquartile range
3. lambda and gamma
4. interaction term and squared term
5. Pearson's  $r$  and Spearman's  $\rho$
6. PRE and non-PRE measures of association
7. Chi-square test and one-way analysis of variance
8.  $t$  and  $Z$  test
9. path analysis and multiple regression

B. Answer question 1 **OR** question 2.

1. a. State a hypothesis that could be tested using Table 1a. What is the independent variable? What is the dependent variable? Is your hypothesis confirmed or rejected? Explain. Cite appropriate percentages and interpret relevant statistics to support your answer.
- b. State a hypothesis that could be tested using Table 1b, assuming that the control variable is an intervening variable. Is your hypothesis confirmed or rejected? Explain. Cite appropriate percentages and interpret relevant statistics to support your answer.
- c. State a hypothesis that could be tested using Table 1b, assuming that the control variable is a specification variable. Is your hypothesis confirmed or rejected? Explain. Cite appropriate percentages and interpret relevant statistics to support your answer.

**OR**

2. Table 2 presents means ( $M$ ) and standard deviations ( $SD$ ) and  $p$ -values associated with paired-samples  $t$  tests for measures of time spent in various activities by wives and husbands in a sample of 520 dual-earner couples residing in eastern Massachusetts in the early 1990s. Low-schedule-control household tasks include planning, preparing, and cleaning up after meals, buying groceries, and laundry. High-schedule-control household tasks include looking after the car, household repairs, and yard work. Write a brief essay substantively interpreting the figures in the table. Cite appropriate means, standard deviations, and  $p$ -values to support your interpretation.

C. Answer the following questions about Table 3.

1. What assumptions must be made to use regression analysis?
2. What does each of the following tell us?
  - a. unstandardized regression coefficient (b)
  - b. standardized regression coefficient (Beta)
  - c. level of significance (p)
  - d. coefficient of determination ( $R^2$ )
3. Write a brief essay substantively interpreting the table.

**Table 1a. Opinion about water-quality standards by level of distrust in announcements from a chemical plant that contaminated the water supply for a sample of residents of a town in Massachusetts.**

**Table 1a. Opinion about water-quality standards by level of distrust in announcements from a chemical plant that contaminated the water supply for a sample of residents of a town in Massachusetts.**

Level of Distrust in Announcements from Chemical Plant	Water Standards Should Be:		Total
	Less Strict or Kept the Same	More Strict	
Low	75.0%	25.0	100.0% (96)
High	46.2%	53.8	100.0% (104)
$\chi^2 = 17.308, df = 1, p < .001; \phi$ or $\Phi = .294; \text{Gamma} = .556$			

**Table 1b. Opinion about water-quality standards by level of distrust in announcements from a chemical plant that contaminated the water supply by frequency of drinking bottled water for a sample of residents of a town in Massachusetts.**

**Drink Bottled Water "Never" or "Occasionally"**

Level of Distrust in Announcements from Chemical Plant	Water Standards Should Be:		Total
	Less Strict or Kept the Same	More Strict	
Low	75.0%	25.0	100.0% (80)
High	64.3%	35.7	100.0% (56)
$\chi^2 = 1.821, df = 1, p > .05; \phi$ or $\Phi = .116; \text{Gamma} = .250$			

**Drink Bottled Water "Often" or "Always"**

Level of Distrust in Announcements from Chemical Plant	Water Standards Should Be:		Total
	Less Strict or Kept the Same	More Strict	
Low	75.0%	25.0	100.0% (16)
High	25.0%	75.0	100.0% (48)
$\chi^2 = 12.800, df = 1, p > .001; \phi$ or $\Phi = .447; \text{Gamma} = .800$			

**Table 2. Means (M) and Standard Deviations (SD) and Results of Paired-Samples *t* Tests for Measures of Time Spent in Various Activities by Wives and Husbands in a Sample of 520 Dual-Earner Couples Residing in Eastern Massachusetts.**

Variable	Wives		Husbands	
	M	SD	M	SD
Total Hours Spent Per Week in Paid Work	36.69	14.21	47.07***	12.33
Total Hours Spent Per Week in 5 Low-Schedule-Control Household Tasks	20.39	9.18	12.01***	6.85
Total Hours Spent Per Week in 4 High-Schedule-Control Household Tasks	3.00	2.68	7.73***	5.46
Total Hours Spent Per Week in Paid and Unpaid Work	63.58	14.57	68.22***	14.80

\*\*\* mean wife-husband difference,  $p < .001$ , two-tailed tests

Adapted from Barnett, Rosalind C. and Yu-Chu Shen. 1997. "Gender, High- and Low-Schedule-Control Housework Tasks, and Psychological Distress: A Study of Dual-Earner Couples." *Journal of Family Issues* 18(4):403-428.

**Table 3. Unstandardized coefficient estimates from regressions of happiness on gender and other selected variables for a sample of U.S. adults in 1990.**

Independent Variables	Model 1	Model 2
<i>Gender</i>		
Male (omitted or reference category)	-----	-----
Female	0.048	-0.188**
<i>Age in years</i>	0.009***	0.006***
<i>Minority status</i>		
Non-Hispanic White (omitted or reference category)	-----	-----
Other	0.069	-0.018
<i>Marital status</i>		
Other (omitted or reference category)	-----	-----
Married or living together	0.446***	0.452***
<i>Education in years</i>	0.059***	0.061***
<i>Emotional expressiveness</i>	-----	1.221***
<i>Emotional reserve</i>	-----	-0.539***
Constant	4.328	0.582
N or number of respondents	2,031	2,031
R <sup>2</sup>	0.032	0.398

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\* p < .05, \*\* p < .01, \*\*\* p < .001, two-tailed tests

NOTE: Respondents were asked, "On how many of the past 7 days have you [felt happy, felt hopeful about the future, enjoyed life]?" Responses for each of the three questions were coded from 0 to 7, from never experiencing the happiness "symptom" to experiencing it every day. A respondent's *happiness* score is the average of the frequencies reported for the three happiness "symptoms." *Emotional expressiveness* is measured by an index, with higher scores indicating greater willingness of respondents to express their emotions. *Emotional reserve* is measured by level of agreement with the statement, "I keep my emotions to myself." The response categories for this variable were "strongly disagree" (coded -2), "disagree" (coded -1), "don't know" (coded 0), "agree" (coded 1), and "strongly agree" (coded 2).

Adapted from Mirowsky, John and Catherine E. Ross. 1995. "Sex Differences in Distress: Real or Artifact?" *American Sociological Review* 60:449-468.