

**Virginia Commonwealth University**  
**School of Social Work**  
**Research for Clinical Social Work Practice II**  
**Tarynn M. Witten, PhD, MSW, FGSA**

Do not put your name on this exam. This is a take home exam. It is due on Monday, April 3rd, 2006 at 4:00PM (prior to the starting of class, I will collect them then). You may use your textbook and your notes to complete the exam, but you may not obtain assistance from any other person. Show your work in the space for each question. Supplemental pages should be attached at the end of each question and appropriately labeled so that I can find answers.

- (1) Please start each new question on a separate new page and label question with appropriate number.
- (2) Make sure to circle your final answer and show all work.
- (3) Number pages consecutively.
- (4) Staple or bind (**no paper clips**) in upper left hand corner.
- (5) Do not put your name on any pages. You may add your id number and page number only to the tops of pages.
- (6) Please pledge your work below using your student id number.

I have neither given nor received any help on this exam.

Pledge\_\_\_\_\_

1. The School of Social Work Admission Test (SSWAT) scores are normally distributed, with a mean of 150 and a standard deviation of 10. (You may not use SPSS on this problem). Do your work on this page.

1. a. Calculate the z-score for a person who receives a score of 143 on the SSWAT, and explain what it means. Show calculations.

1. b. If a person receives a standard score (z-score) of 1.2 on the SSWAT, what was the original SSWAT score? Show calculations.

1. c. What percentage of SSWAT test-takers will score between 145 and 155? Show work.

1. d. What percentage of SSWAT test-takers will score between 145 and 150? Show work.

1. e. What percentage of SSWAT test-takers will score between 160 and 165? Show work.

1. h. If a social work school has a minimum SSWAT score of 155, what percentile rank must a candidate reach on the SSWAT to be eligible for admission? Show work.

1. i. A social work school candidate has an SSWAT score that is at the 77th percentile. By how many points must the SSWAT score be raised to be at the 85th percentile? Show how you arrived at your answer.

2. A friend of yours is on a committee in a Midwestern state that is trying to persuade the state legislature to provide more support for public education by raising state taxes. Their position is that investment in education will have the long-term consequence of increasing prosperity in the state. Legislators need to be convinced of that and also that their constituents are likely to support what seems to them to be a very unpopular idea. Your friend has asked you for help in interpreting some data from the Statistical Abstracts of the United States about the socioeconomic status of the population in Midwestern states and patterns of support for public education. The data that you are given is in Table 2

**Table 2**

**Per Person Disposable Income, Percentage of College Graduates, and Expenditures for Education in 12 Midwestern States**

State	X Percent college graduates	Y Per person disposable income (\$ thousands)	Average salary of public school teachers (\$ thousands)	Per pupil expenses (\$ thousands)
Illinois	21.1	18.9	36.5	5.2
Indiana	15.6	15.9	34.8	5.4
Iowa	16.9	16.1	29.2	4.9
Kansas	21.1	17.0	30.7	5.1
Michigan	17.3	17.2	41.1	5.6
Minnesota	21.9	17.3	33.7	5.5
Missouri	17.8	16.7	28.9	4.5
Nebraska	19.0	17.0	27.2	4.7
N. Dakota	18.0	15.3	24.5	4.1
Ohio	17.0	16.4	33.3	5.5
S. Dakota	17.2	15.1	23.3	4.3
Wisconsin	17.7	16.4	35.2	6.0

Source: U.S. Department of Commerce, *Statistical Abstract of the United States 1993*, (Washington, D.C.: U.S. Government Printing Office, 1993), pp. 155, 161, 164, and 449.

2. a. The first thing you decide to look at is whether the educational level of a state's population is associated with rising levels of prosperity. You decide to look at per person disposable income as the dependent variable and the percentage of college graduates in the state as the independent variable. The results of the regression are shown below. Use SPSS to perform the regression and present your results. Attach your SPSS results (carefully labeled) to the end of the test question. Compare them to the results in the equation below. Discuss any reasons for possible discrepancies. Give a verbal interpretation of what the value of the slope coefficient means in the context of this particular research problem. Cite your answer relative to the variables in the model.

$$\hat{Y} = 10.304 + 0.343X$$

2. b. Using the equation above, what would you predict for per person disposable income in Indiana based on the percentage of college graduates in the state population?
2. c. Calculate the prediction error for Indiana, and explain what it means.
2. d. If Indiana raised its percentage of college graduates to 21 percent of the state's population, what would you predict for per person disposable income?
2. e. The value of Pearson's  $r$  between per person disposable income and the percentage of a state's population that has graduated from college is  $r = 0.67$  in these data. How much of the variation in per person disposable income is explained by the percentage of college graduates in the population?



3. Births to unmarried women in the United States are often attributed to lack of education, poverty, and a welfare system that discourages work and self-sufficiency. However, the commonly given explanation for births to unmarried women in the United States does not seem sufficient to account for the fact that births to unmarried women are rising in most industrial societies. The data provided in Table 3 allow you to examine the relationship between the percentage of births to unmarried women and several indicators of the socioeconomic status of women in these societies.

**Table 3 Divorce Rates, Percentage of Women in the Labor Force, Percentage of Women with Higher Education, and Percentage of Births to Unmarried Women in Ten Countries**

Country	X Percentage of women in the labor force	Y Percentage of births to unmarried women	Divorce rate	Percentage women with higher education
Canada	65.3	24	11	16.2
Denmark	78.3	46	13	13.7
France	59.0	30	8	12.1
Germany	61.3	11	8	10.5
Italy	46.5	6	2	6.7
Japan	61.7	1	5	11.5
Netherlands	55.5	11	8	22.8
Sweden	75.8	47	12	9.3
United Kingdom	64.8	28	13	10.7
United States	69.1	28	21	23.1

Source: U.S. Department of Commerce, *Statistical Abstract of the United States 1995*, (Washington, D.C.: U.S. Government Printing Office, 1995), pp. 852 and 862; U.S. Department of Education, National Center for Education Statistics, *The Condition of Education 1996*. (Washington, D.C.: U.S. Government Printing Office, 1996, p. 96.)

$$\sum X = 637.3$$

$$\sum X^2 = 41,402.55$$

$$\sum Y = 232$$

$$\sum Y^2 = 7,648$$

$$\sum XY = 15,876.3$$



3. d. Predict the percentage of births to unmarried women for Japan and for France, using the equation found for question (c).

3. e. Calculate the prediction error (residual) for France and Japan, and explain what each value means.

4. Below the college level, teaching is a female-dominated occupation, but there are gender differences in level of instruction (elementary or secondary) and the likelihood of holding a position of authority in the public school system. The Table below shows the number of public school classroom teachers in 1982 and 1992 by gender and level of instruction.

**Public School Classroom Teachers by Gender and Level of Instruction: 1982 and 1992 (In thousands)**

---

<b>1982</b>			
<b>Gender (X)</b>			
<b>Level of Instruction (Y)</b>	Male	Female	Total
Elementary	129	669	798
Secondary	363	343	706
Total	492	1012	

  

<b>1992</b>			
<b>Gender (X)</b>			
<b>Level of Instruction (Y)</b>	Male	Female	Total
Elementary	123	807	930
Secondary	312	381	693
Total	435	1188	

---

Source: U.S. Bureau of the Census, *Statistical Abstract of the United States 1995 (115th Edition)*, Washington, D.C., 1995 p. 166.

4. a. To test the hypothesis that level of instruction is influenced by gender, which variable should be considered the independent variable?
4. b. Present an appropriately constructed and labeled bivariate percentage table to test the hypothesis stated in (a), using 1992 data.



4. f. Calculate the value of lambda using the 1982 data. Show computations.

4. g. Write a one- or two-sentence report comparing the association between gender and level of instruction among public school classroom teachers in 1982 and 1992. Did the association change? If so, how?